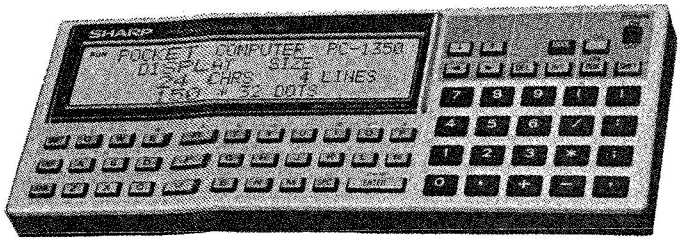
SHARP SERVICE MANUAL

CODE : 00ZPC1350SM/E

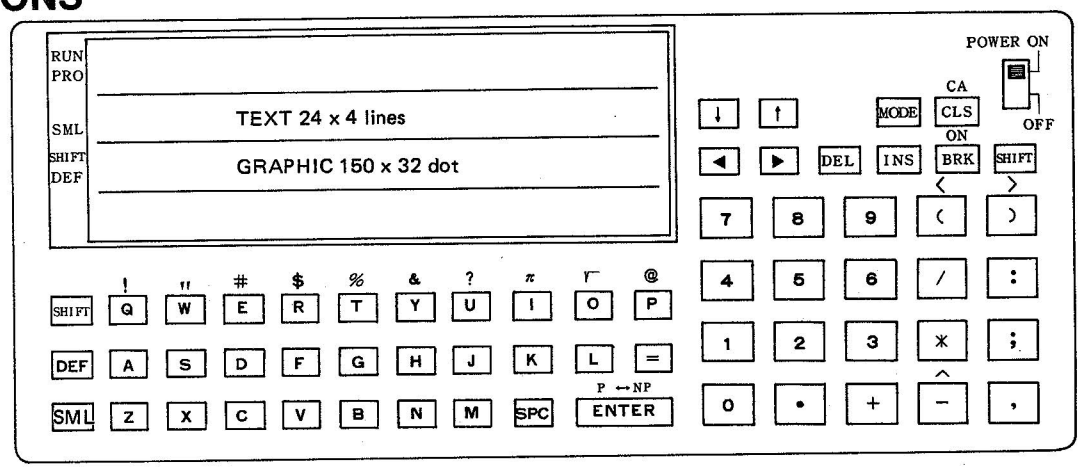


CE-516L
CE-202M
CE-201M

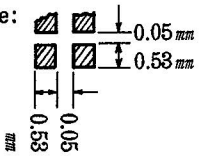
MODEL PC-1350

1. SPECIFICATIONS

- **Keyboard layout**

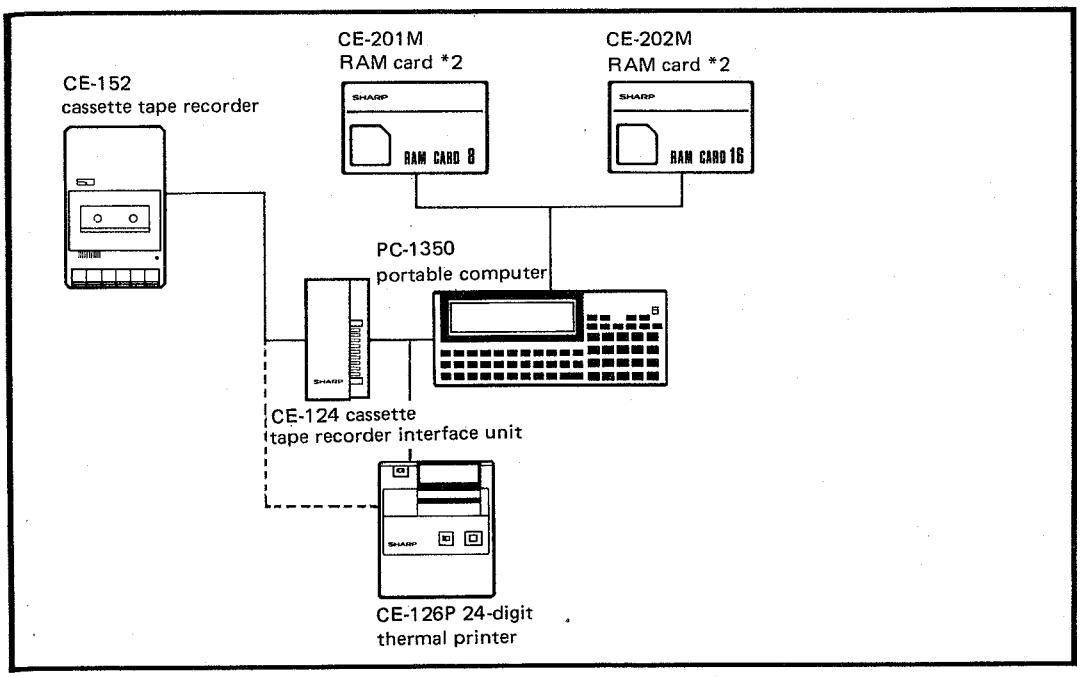


- Model: PC-1350
- Arithmetic capacity: 10 digits (mantissa) + 2 digits (exponent)
- Arithmetic method: In order of mathematical expression (with priority determination function)
- Programming language: BASIC
- Microprocessor: CMOS 8-bit CPU
- System ROM: 40 Kilobytes
- Memory capacity:
  System area: Approx. 1.6 kilobytes
  Data area: . . . . . 208 bytes
  Program/data area: . . . 3070 bytes
  Reserve area: . . . . . 144 bytes
- Stack registers:
  Subroutine: . . . . . 10 stages
  FOR-NEXT: . . . . . 5 stages
  Function: . . . . . 16 stages
  Data: . . . . . 8 stages
- Basic calculator functions:
  Fundamental:
  Four math rules
  Functions:
  Trigonometric, reverse trigonometric, logarithm, exponential, angular transformation, power rising, square root, integer, absolute value, signum function, circular constant
- Editing functions:
  Horizontal cursor control (▶, ◀)
  Insertion (INS)
  Deletion (DEL)
  Line up and down (↓, ↑)
- Serial i/o function:
  Communication method:
  Asynchronous (half-duplex only)
  Baud rate: 300, 600, 1200
  Parity bit: Even, odd, free
  Word length: 7 or 8 bits
  Stop bit: 1 or 2 bits
  Connector: 15-pin, for connection with external unit
  Output signal level:
  CMOS level (4-6 volts)
  Interfacing signals:
  Input: . . . . . RD, CS, CD
  Output: . . . . SD, RS, RR, ER
  Others: . . . . . SG, FG, VC
- Memory protection: Program, data, reserve areas are backed up by battery during power off.
- Display:
  LCD display
  (1) Text display
  5 x 7 dot matrix (24 x 4 lines)
  (2) Graphic display
  150 x 32 full dot display
  Character size:
  4.01(H) x 2.85(W) mm
  Character pitch:
  3.48 (1 dot space) mm
  Dot size:



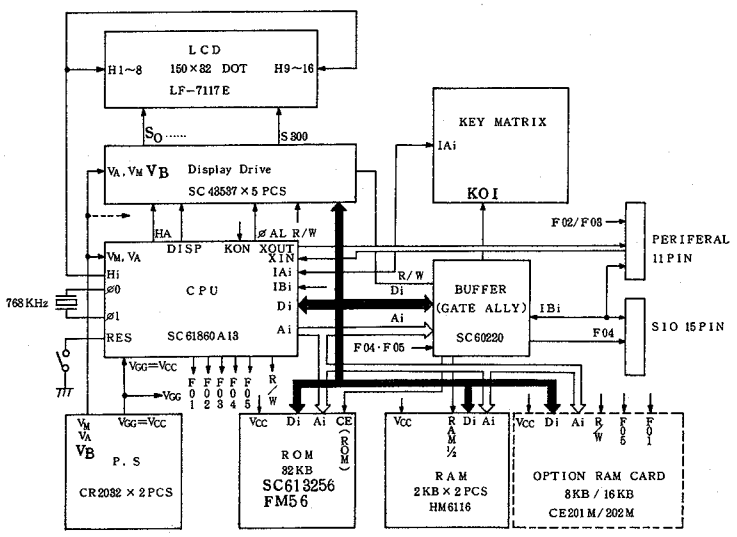
- Auto-power-off: About 11 minutes
- Operating temperature: 0 to 40°C
- Power supply: 6 VDC (CR2032 lithium battery x 2)
- Battery life: About 250 hours (when *5* displayed continuously over 48 digits under 20°C. But, it may vary depending on the kind of battery used and usage.)
  - If operated one hour per day, it will last for 2.5 months, provided that 10 minutes are used for arithmetical operation or program execution with 50 minutes of displaying data.
- Power consumption: 0.03 watts
- Physical dimensions: 182(W) x 72(D) x 16(H) mm
- Weight: 190 grams, including batteries
- Accessories: Hard cover, 2 templates, 2 lithium batteries contained in the unit, instruction manual, name label
- Options (Example)
  CE-124 Cassette Interface (CE-152)
  CE-126P Printer/Cassette Interface
  CE-201M 8 KB RAM card
  CE-202M 16 KB RAM card

2. SYSTEM CONFIGURATION



*2: Memory retention period of the CE-201M is about 34 months and CE-202M about 18 months.

3. PC-1350 BLOCK DIAGRAM

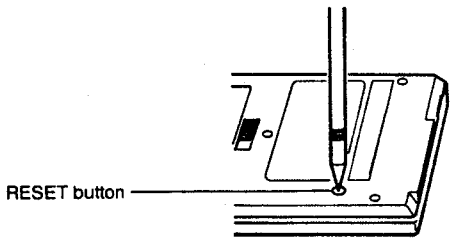


SUPPLEMENT & CORRECTION

Supplement

Checking the operation when replacing the battery cells
After replacing the cells, perform the following operations.
Be sure to remove the RAM card before initialization.

① Turn on the computer by setting the power slide switch to the ON position and press the RESET button to clear the computer.

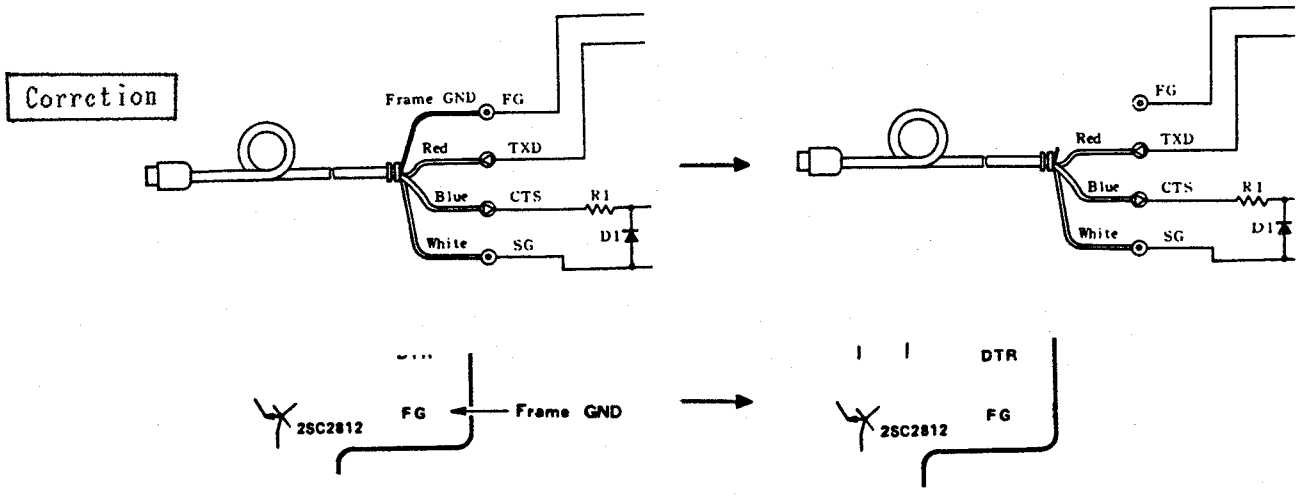


② Enter the following:
CALL &EF88 [ENTER]
POKE &6EAF, 0 [ENTER]
and check that the following is displayed:

```
RUN   RUN MODE
      CALL &EF88
      POKE &6EAF, 0
      >
```

③ If the display above cannot be obtained, perform steps ① and ② again.
CALL &EF88 initializes the serial I/O function. POKE &6EAF, 0 initializes the display function. If these initializations are not performed meaningless displays may appear or the equipment connected to the serial I/O terminal may not operate properly.
If a program and data have been stored on the RAM card, remount it after performing the initialization.
If the PC-1350 is initialized while the RAM card is mounted, the RAM card will also be initialized (program and data cleared).

Correction



CE-516L Circuit diagram

4. BATTERY LIFE AND POWER CONSUMPTION

PC-1350 power supply	Lithium battery, type CR-2032 x 2 pcs	Capacity: 200 mAH	Terminal voltage: About 6.0 V
CE-201M/ 202M	Lithium battery, type CR-2025 x 1 pc	Capacity: 120 mAH	Terminal voltage: About 3.0 V

☆ Battery life

Condition	Date retention time
PC-1350 under power off	About 7 months
PC-1350 + CE202M	About 6 months
CE-201M	About 34 months
CE-202M	About 18 months

☆ See the Instruction Manual for the battery life.

☆ Power consumption

Power consumed for the PC-1350 under power off	20 μA, max.
Power consumed for the PC-1350 during displaying	500 μA, max.
Power consumed for the PC-1350 during arithmetical operation	5 mA, max.
Power consumed for the CE-202M	About 8.4 μA, max.

As the above values are observed under the room temperature of 20°C, it may vary depending on environment.

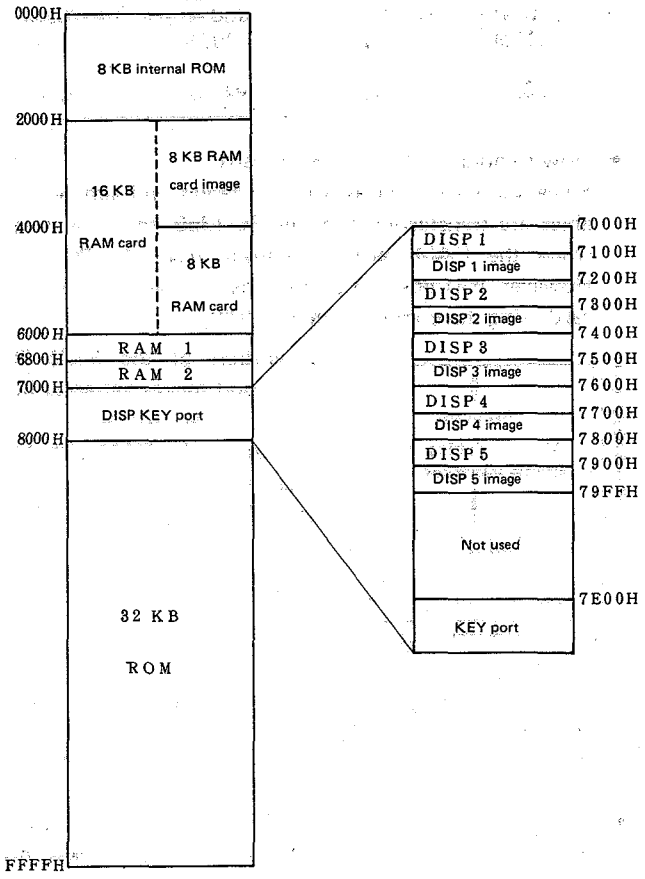
☆ How to judge the life of the battery

PC-1350: Needs replacement when the terminal voltage drops below 5.2 volts (2.6 volts per battery cell).

CE-201M/202M: Needs replacement when the terminal voltage drops below 2.5 volts.

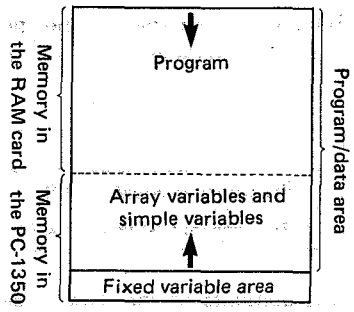
NOTE: To replace the battery for the RAM card
If the RAM card is replaced while it is installed in the PC-1350, replacement can be done without destructing the program data.

5. RAM map



6. CAUTIONS IN USING THE RAM CARD OPTION

- The PC-1350 will not operate unless the RAM card lock switch is turned to the LOCK side.
- When the data-free RAM card is installed to the PC-1350, it makes the PC-1350 memory area linked with the RAM card memory area so that the program/data area is united. And, the program is written from the RAM card, and the array variables and simple variables are secured by the PC-1350.



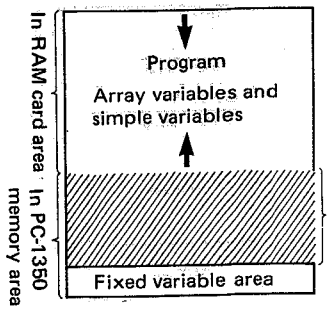
Since the program contained in the RAM card is retained in the card after removal of the card from the PC-1350, it enables to use the program again when the RAM card is mounted in the PC-1350 afterward.

- Because the reserve area is in the PC-1350, it is not possible to reserve it in the RAM card.

- Capacity (bytes) of the program/data area

PC-1350 with CE-201M	CE-201M only	PC-1350 with CE-202M	CE-202M only
11262	8142	19454	16334

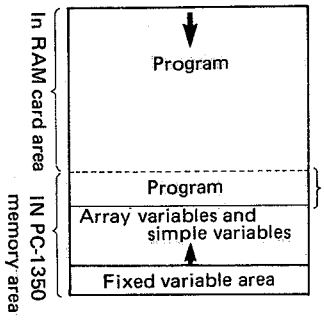
- How to hold data on the RAM card
  Since variables such as array variables and simple variables are transferred from the PC-1350, they are erased when the RAM card is removed from the PC-1350. However, it is possible to hold the variables on the RAM card using the command (MEM "C").



Execution of the MEM "C" command makes variables held on the RAM card, so that they remain on the RAM card even after it has been removed from the PC-1350.

This area is not used when 'MEM "C"' is executed.

- Setup by the MEM "C" command can be released by the execution of the MEM "B" command. At this point, all existing array variables and simple variables will be erased.
- When the RAM card is removed from the PC-1350 after the execution of the MEM "C" command, it makes this setup invalid to the PC-1350. However, mounting of the RAM card to the PC-1350 again will validate this setup.
- When program is executed by the RUN command, it makes array variables and simple variables erased. To make the RAM card data left on the card, define the program using a definable key, then start the program with that definable key. Do not use the RUN command.
- If a program is contained in the PC-1350 upon mounting of the RAM card, it makes the existing program ignored. Therefore, it becomes impossible to execute the program contained in the PC-1350. Neither, it can be recalled. In case a large sized program exceeding the RAM card capacity has been contained, it makes the program in the PC-1350 destroyed. Further, storing of array variables and simple variables in the PC-1350 may also make the program destroyed, depending on the case.
  (If the program has not been destroyed, it enables you to execute the program after removing the RAM card.)



This program is assumed not existing so that it makes the program started to write, and, when it reaches the area, it makes the program destroyed. Also, the area where array variables and simple variables are stored is reached, it makes the program destroyed. As the PC-1350 program/data area is not used unless the MEM "C" command has been executed, it does not destroy the program.

7. USE OF TEST PROGRAM

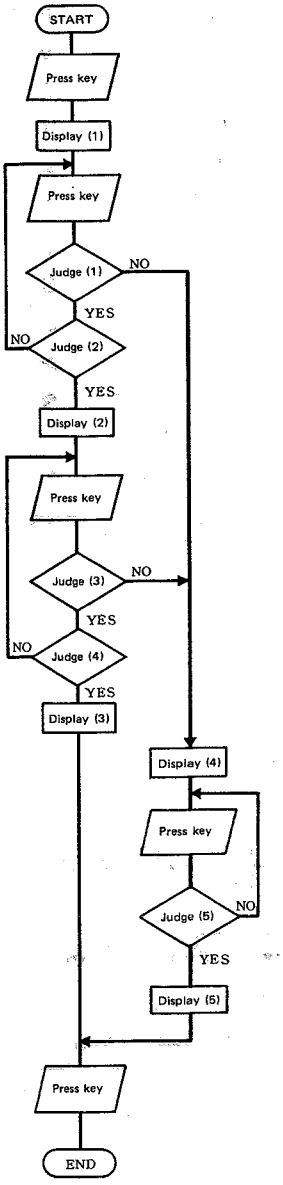
Tools required ..... 8 KB test program RAM card (UKOGC1010CSZZ)
I/O circuit test connector cable (UKOGG0089CSZZ)

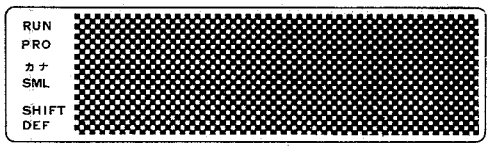
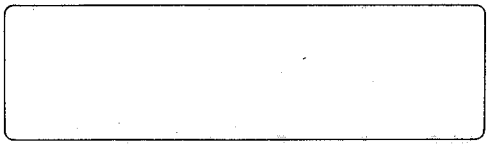
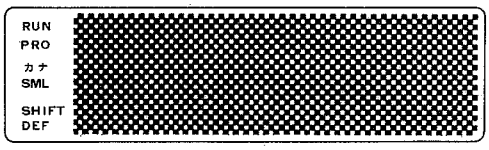
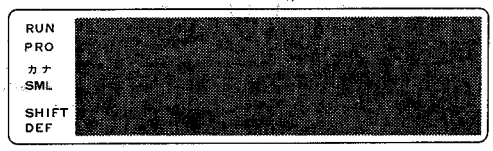
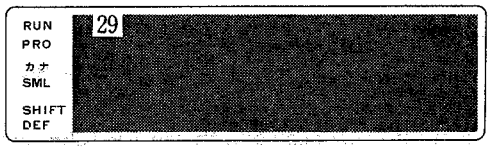
- **PC-1350 implemented memory test program**
  In the PC-1350 ROM are contained the checksum test programs to test the CPU internal ROM (8 KB) and the external ROM (32 KB).

Test ROM	Key operation (RUN mode)	Successful test display (V.1)
CPU internal ROM (8 KB)	CALL & 802D ENTER	31887
CPU external ROM (32 KB)	CALL & 802A ENTER	21946

NOTE: The contents of the data/program area of the RAM is not guaranteed after the execution of the test program. It needs to push the ALL RESET switch upon the completion of the test.

- **Display and key input tests**
  Set the test RAM card (UKOGC1010CSZZ) in the PC-1350. Start the test in reference to the following flowchart.



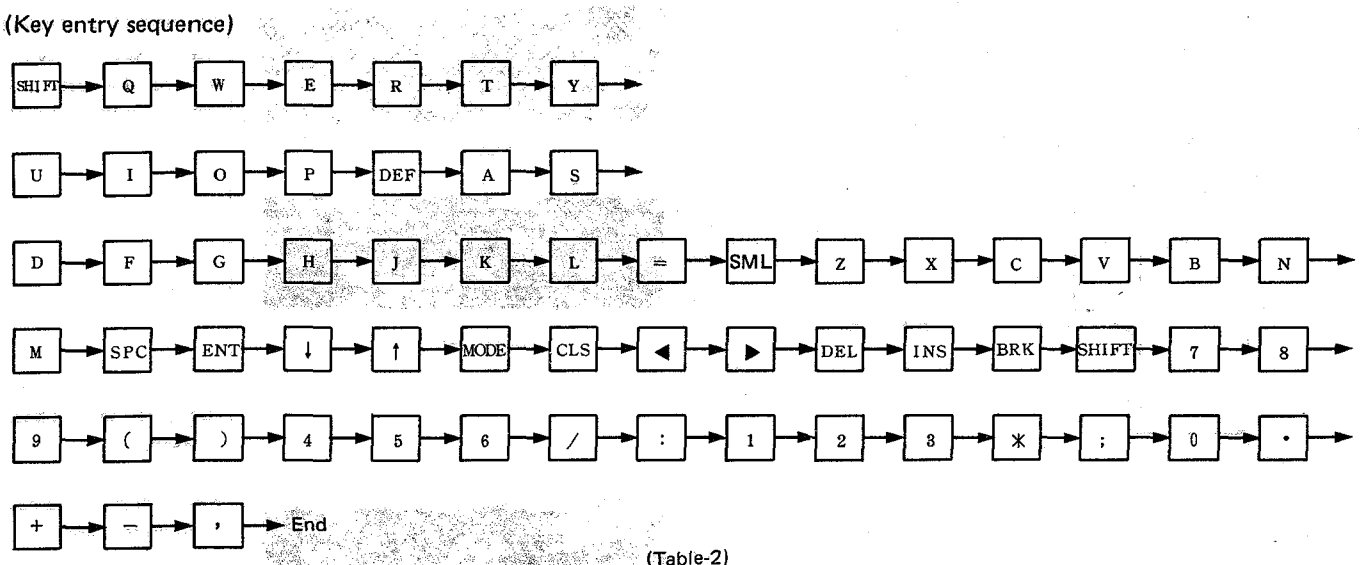
Key operation	Display	Remark
CALL & 5000 [ENTER]	 Display (1)	Assign the display/key test program. (150 x 32 dots staggering pattern)
[9]→[5]→[1]→[▶]→[N]→[J]→[I]		At judge (1) is checked if keys are pressed in the given order. At judge (2) is checked if [I] key has been pressed.
	 Display (2)	
[SHIFT]→[Q]→		At judge (3) is checked if keys are pressed in the given order.
..... (See Table-2) .....→[+]→[−]→[,] .	 Display (3)	At judge (4) is checked if the [,] key has been pressed. (Reverse display pattern of display (1))
[ENTER]	 Display (4)	At judge (5) is checked if [ENTER] key has been pressed.
[ENTER]	 Display (5)	Keys which should have been pressed are displayed using their code. Make reference to Table-1. Ex: "29" represents the [9] key.
		Returns to the starting point.

(Key code chart)

Display code	Corresponding key	Display code	Corresponding key	Display code	Corresponding key	Display code	Corresponding key
00	Y	10	L	20	*	30	8
01	H	11	ENT	21	/	31	R
02	N	12	P	22	(	32	F
03	DEL	13	=	23	W	33	V
04	INS	14		24	S	34	0
05		15	SHIFT	25	X	35	1
06	U	16	DEF	26	+	36	4
07	J	17	SML	27		37	7
08	M	18	,	28	6	38	T
09	MODE	19		29	9	39	G
0A		1A	:	2A	E	3A	B
0B	I	1B	)	2B	D	3B	▶
0C	K	1C	Q	2C	C	3C	◀
0D	SPC	1D	A	2D	•	3D	↓
0E	CLS	1E	Z	2E	2	3E	↑
0F	O	1F	–	2F	5	3F	BRK

(Table-1)

(Key entry sequence)



(Table-2)

- **I/O circuit tests**

Make the 11-pin connector connected with the CE-126P and the 15-pin connector of the SIO circuit connected with another PC-1350 via the interfacing cable (UKOGG0089CCZZ). Perform communication with the other end to check proper functioning of the PC-1350.

(Program on the tested unit)

```
 10 : OPEN
 20 : FOR I=3TO255
 30 : B$=CHR$ I
 40 : INPUT #1A$
 50 : PRINT #1B$
 60 : WAIT0:PRINT A$;
 70 : NEXT I
 80 : CLS
 90 : CLOSE:GOTO10
100 : END
```

(Program on the testing unit)

```
 10 : OPEN
 20 : FOR I=3TO255
 30 : A$=CHR$ I
 40 : PRINT #1A$
 50 : INPUT #1B$
 60 : WAIT0:PRINT B$;
 70 : NEXT I
 80 : CLS
 90 : CLOSE: GOTO10
100 : END
```

With the above test program check to see that the SIO circuit is functioning properly with the same display appearing on both sides.

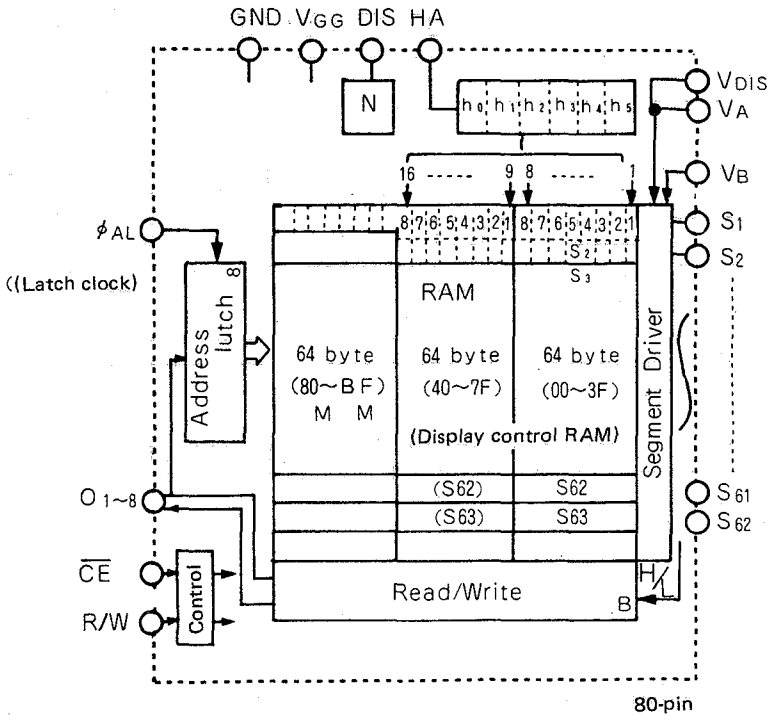
8. LSI DESCRIPTIONS

SC61860A 13 microprocessor signal description

Pin No.	Signal name	In/Out	Description Standby = power off
1	AO1	Out	(A0) Address bus line. High during standby.
2	R/W	Out	Write clock. Normally high.
3	ϕAL	Out	Low order bit address latch. Normally high. Clock used to latch the low order 8 bits sent on the data bus line which is used in sending 16 bits address signal when using a large capacity ROM.
4	TES	In	Test pin. Normally low.
5	ϕ1	In	Oscillator input.
6	ϕ0	Out	Oscillator output.
7	RES	In	Reset input. Reset when high. Normally pulled down to low level.
8	Xin	In	CE-124 microcassette tape recorder option signal input (MTin).
9	ON	In	ON [BREAK] key input. Normally pulled down to low level. [BRK]
10	Xout	Out	CE-124 microcassette tape recorder option and buzzer signal output (MTout1).
11	Dis	Out	LCD driver control signal.
12	HA	Out	LCD driver clock. Low during standby. 2 KHz pulse generated during displaying.
13	IA8	In/Out	Key signal input/key strobe output signal. Low during standby. Pulse generated when key is pressed in the low level.
14	IA7	In/Out	Key signal input/key strobe output signal. Low during standby. Pulse generated when key is pressed in the low level.
15	IA6	In/Out	Key signal input/key strobe output signal. Low during standby. Pulse generated when key is pressed in the low level.
16	IA5	In/Out	Key signal input/key strobe output signal. Low during standby. Pulse generated when key is pressed in the low level.
17	IA4	In/Out	Key signal input/key strobe output signal. Low during standby. Pulse generated when key is pressed in the low level.
18	IA3	In/Out	Key signal input/key strobe output signal. Low during standby. Pulse generated when key is pressed in the low level.
19	IA2	In/Out	Key signal input/key strobe output signal. Low during standby. Pulse generated when key is pressed in the low level.
20	IA1	In/Out	Key signal input/key strobe output signal. Low during standby. Pulse generated when key is pressed in the low level.
21	IB8	In	ACK signal. Enable signal when the I/O (PCU) reads data from the CPU.
22	IB7	In	Data In (Din) signal. Serial data input signal from the PCU (bit term serial handshaking).
23	IB6	In	SIO [CD]. Detection of a send request from the other end.
24	IB5	In	SIO [CS]. Detection of send enabled from the other end.
25	IB4	In	SIO [RD]. Receive data.
26	IB3	Out	SIO [RR]. Sending of receive enabled from this end. Low during standby (buffered by gate alley).
27	IB2	Out	SIO [RS]. Sending of send request from this end. Low during standby (buffered by gate alley).
28	IB1	Out	SIO [ER]. Goes high by the execution of OPEN command. Low during standby (buffered by gate alley).
29	VM	In	LCD power supply.
30	VA	In	LCD power supply.
31	GND	In	Power supply
32	H1	Out	LCD backplate signal. High impedance during standby. 4-level pulse during displaying.
33	H2	Out	LCD backplate signal. High impedance during standby. 4-level pulse during displaying.
34	H3	Out	LCD backplate signal. High impedance during standby. 4-level pulse during displaying.
35	H4	Out	LCD backplate signal. High impedance during standby. 4-level pulse during displaying.
36	H5	Out	LCD backplate signal. High impedance during standby. 4-level pulse during displaying.
37	H6	Out	LCD backplate signal. High impedance during standby. 4-level pulse during displaying.
38	H7	Out	LCD backplate signal. High impedance during standby. 4-level pulse during displaying.
39	H8	Out	LCD backplate signal. High impedance during standby. 4-level pulse during displaying.
40	H9	Out	LCD backplate signal. High impedance during standby. 4-level pulse during displaying.
41	H10	Out	LCD backplate signal. High impedance during standby. 4-level pulse during displaying.
42	H11	Out	LCD backplate signal. High impedance during standby. 4-level pulse during displaying.
43	H12	Out	LCD backplate signal. High impedance during standby. 4-level pulse during displaying.
44	H13	Out	LCD backplate signal. High impedance during standby. 4-level pulse during displaying.
45	H14	Out	LCD backplate signal. High impedance during standby. 4-level pulse during displaying.
46	H15	Out	LCD backplate signal. High impedance during standby. 4-level pulse during displaying.

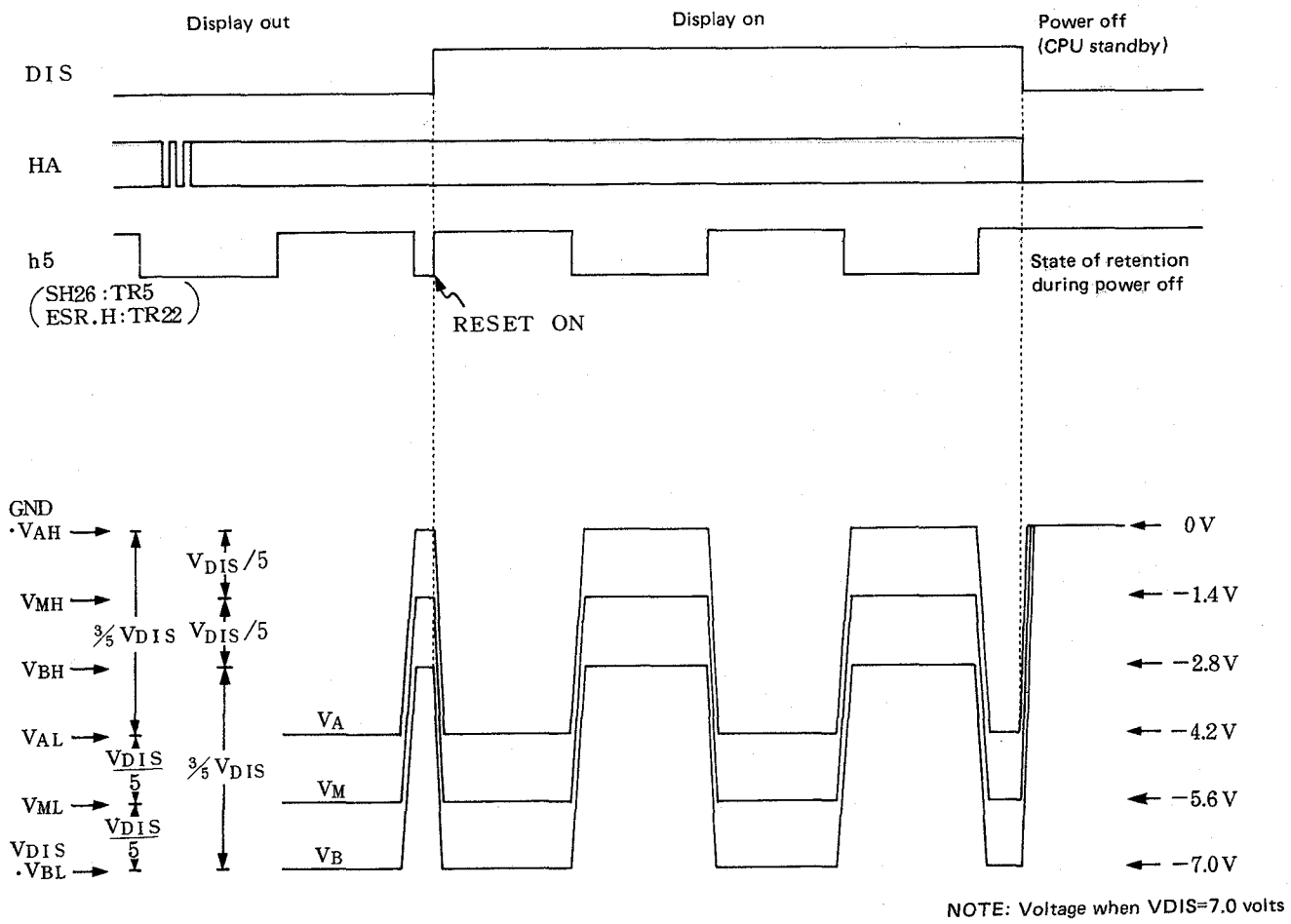
Pin No.	Signal name	In/Out	Description Standby = power off
47	H16	Out	LCD backplate signal. High impedance during standby. 4-level pulse during displaying.
48	V_B	In	LCD power supply. High during standby. Clock stop level in V_B state.
49	V_{DIS}	In	LCD power supply. High during standby. Clock stop level in low state.
50	V_{CC}	In	LCD power supply. Low at all times.
51	V_{DC}	Out	LCD power supply. High during standby. Clock stop level in low state.
52	V_{GG}	In	Power supply. Low at all times.
53	O8	In/Out	Data bus line. Normally high impedance.
54	O7	In/Out	Data bus line. Normally high impedance.
55	O6	In/Out	Data bus line. Normally high impedance.
56	O5	In/Out	Data bus line. Normally high impedance.
57	O4	In/Out	Data bus line. Normally high impedance.
58	O3	In/Out	Data bus line. Normally high impedance.
59	O2	In/Out	Data bus line. Normally high impedance.
60	O1	In/Out	Data bus line. Normally high impedance.
61	FO5	Out	32 K ROM chip enable.
62	FO4	Out	SIO [SD]. Transmit data. Low during standby (buffered by gate alley).
63	FO3	Out	BUSY signal. Interface output port.
64	FO2	Out	DOUT (Data Out). Data output port to peripheral.
65	FO1	Out	Application ROM chip enable output (provided on the RAM card connector).
66	BO8	Out	RAM, DISP-LSI enable signal.
67	BO7	Out	(A14) address bus line. High during standby.
68	BO6	Out	(A13) address bus line. High during standby.
69	BO5	Out	(A12) address bus line. High during standby.
70	BO4	Out	(A11) address bus line. High during standby.
71	BO3	Out	(A10) address bus line. High during standby.
72	BO2	Out	(A9) address bus line. High during standby.
73	BO1	Out	(A8) address bus line. High during standby.
74	AO8	Out	(A7) address bus line. High during standby.
75	AO7	Out	(A6) address bus line. High during standby.
76	AO6	Out	(A5) address bus line. High during standby.
77	AO5	Out	(A4) address bus line. High during standby.
78	AO4	Out	(A3) address bus line. High during standby.
79	AO3	Out	(A2) address bus line. High during standby.
80	AO2	Out	(A1) address bus line. High during standby.

Description of the SC43537 Display LSI



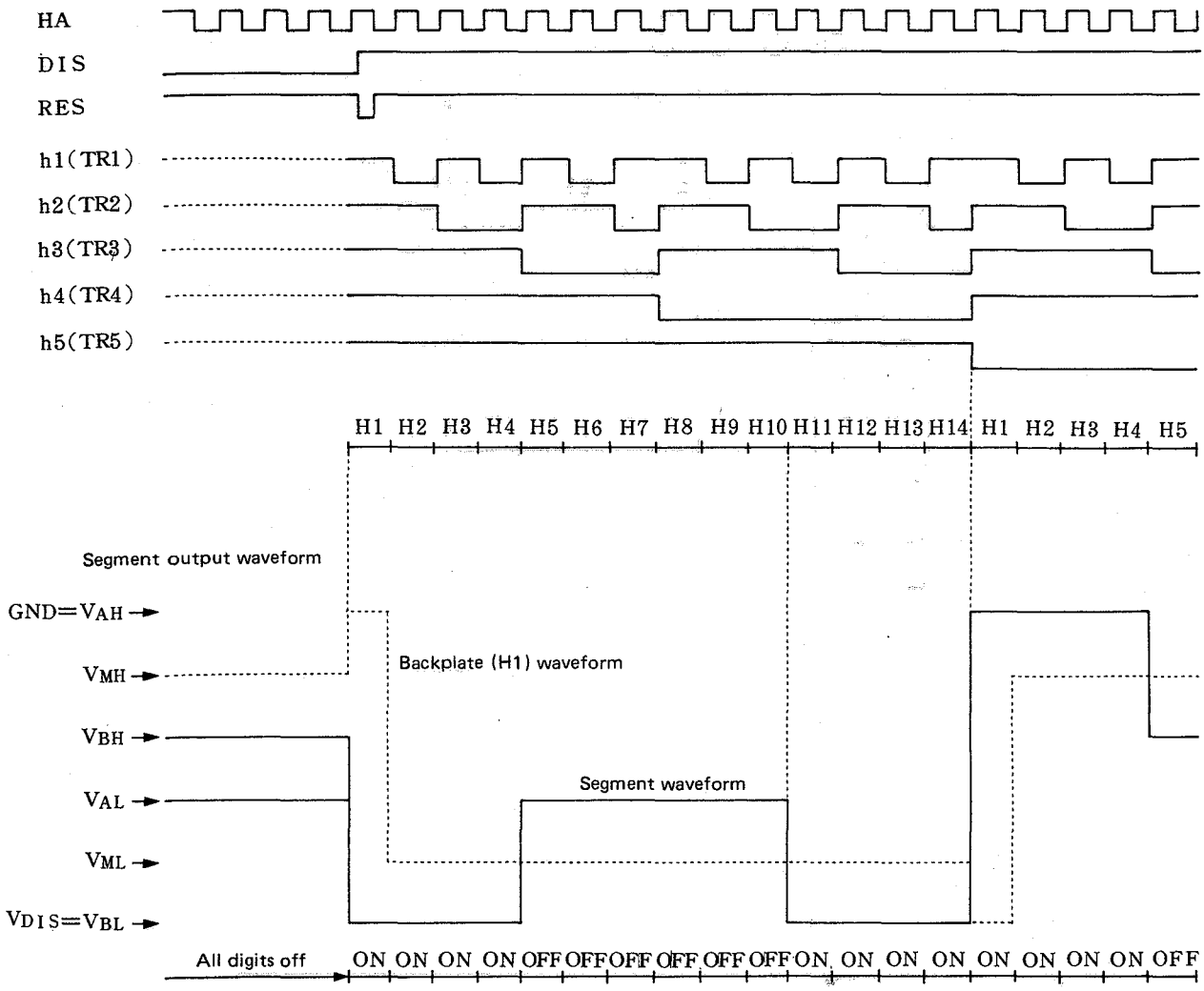
The LCD operates under 1/16 duty.

- **Timing**



NOTE: Voltage when VDIS=7.0 volts

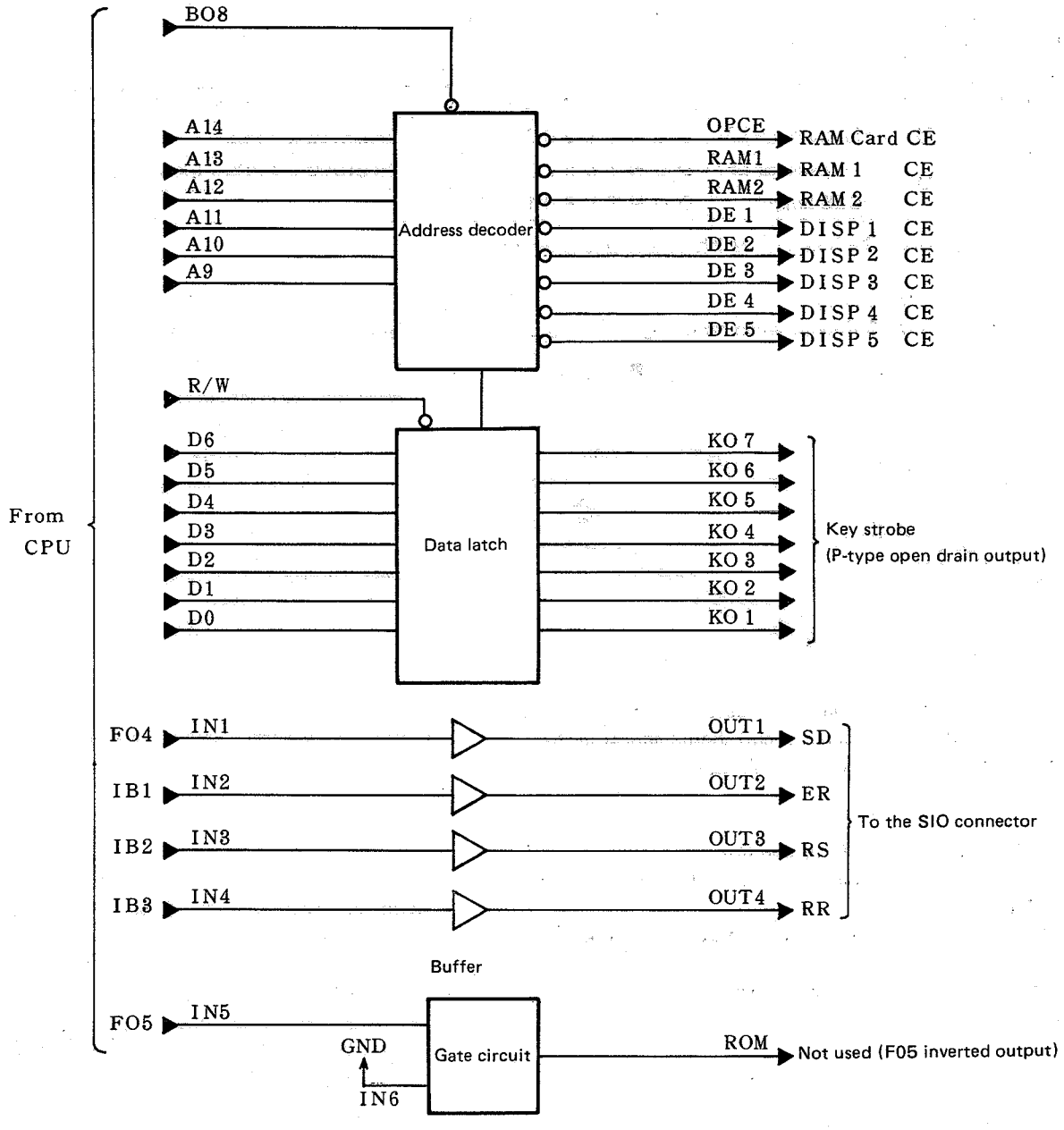
- **Counter and segment waveforms**

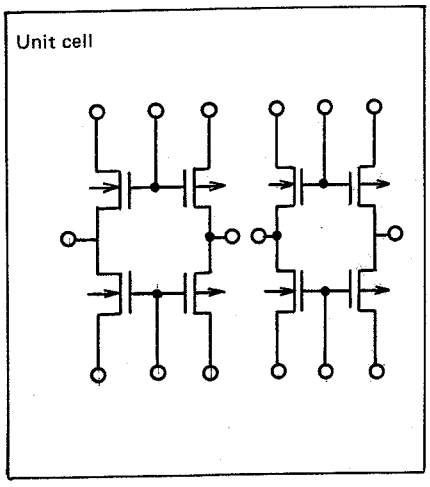


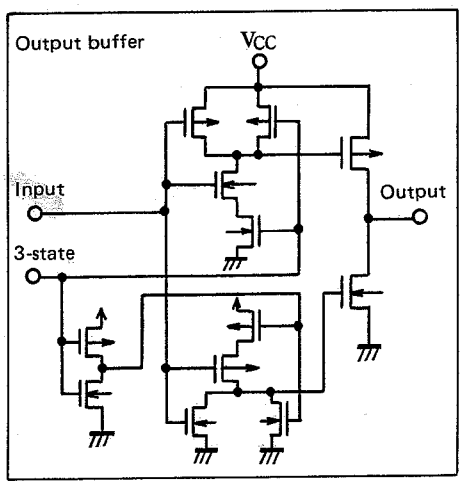
	h5 = 1	h5 = 0
All digits off (DIS = L)	V_{AL}	V_{BH}
On	V_{BL}	V_{AH}
Out	V_{AL}	V_{BH}

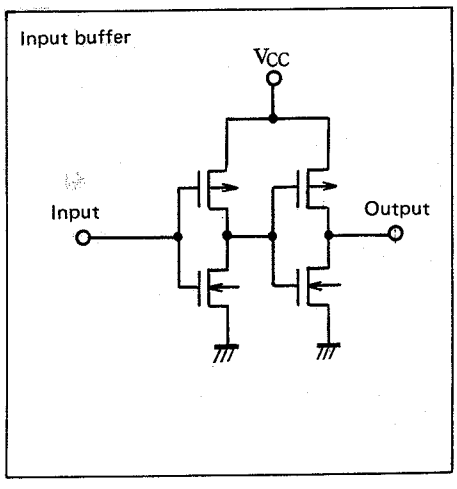
SC60220 Gate Alley

This LSI chip is used to decode various LSI (RAM, DISP) chip select signals, to generate key strobe, and to buffer SIO output signals.









9. RAM CARD

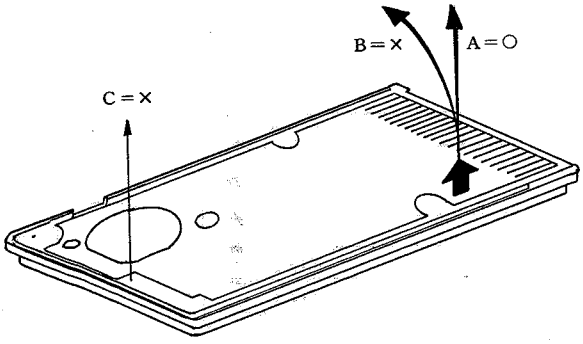
- There are two kinds of RAM card options available with one CR2025 lithium battery; the one is the CE-201M which has 8 KB capacity and the other is the CE-202M which has 16 KB capacity.
- As the lithium battery is contained in the package, it must be fitted using the special battery removing tool that comes with the RAM card.
- There are following kinds of board units.

Model name	Type	Parts code	RAM LSI
CE-201M	Flat package LSI	D U N T K 8 0 6 6 C C Z Z	2KBRAM x 4 PCS
CE-202M	Flat package LSI	D U N T K 8 2 0 0 C C Z Z	2KBRAM x 4 PCS + 8KBRAM x 1 PC
	PCOS board*	D U N T K 8 0 4 5 C C Z Z	——

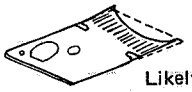
* PCOS board: The board on which an LSI chip is directly bonded.

(How to remove the board)

Pay attention to the following when removing the board unit from the cabinet for troubleshooting.

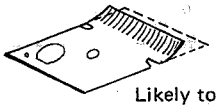


o When removed in the direction B



Likely to curl as in the figure.

o When removed in the direction C



Likely to curl as in the figure.

Bonding the curled terminals on the cabinet may result in terminal contact failure. Make the deformed board unit corrected so that a slight degree of curl should appear in the opposite direction, and use the fresh tape to bonding the board on the cabinet.

Wipe clean the board and the cabinet tape bonding portion using alcohol. After bonding, wipe terminals using alcohol.

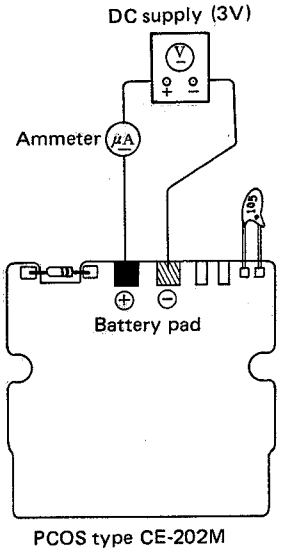
CE-201M/202M power consumption test

1) Connect the ammeter between both ends of battery pad (see figure below).
2) Turn on the +3V DC supply and measure the amperage after three seconds later.
3) With the CE-201M the amperage should be stable below 4.0 μA.

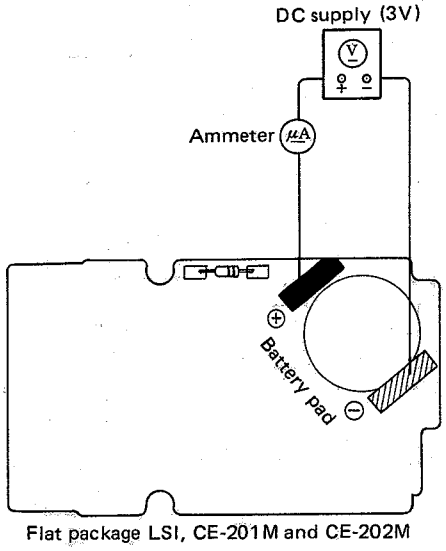
With the PCOS type CE-202M it should be stable below 7.0 μA.

With the flat package LSI CE-202M it should be stable below 8.4 μA.

Although several ten microamperes may flow immediately after power on, it can be disregarded.



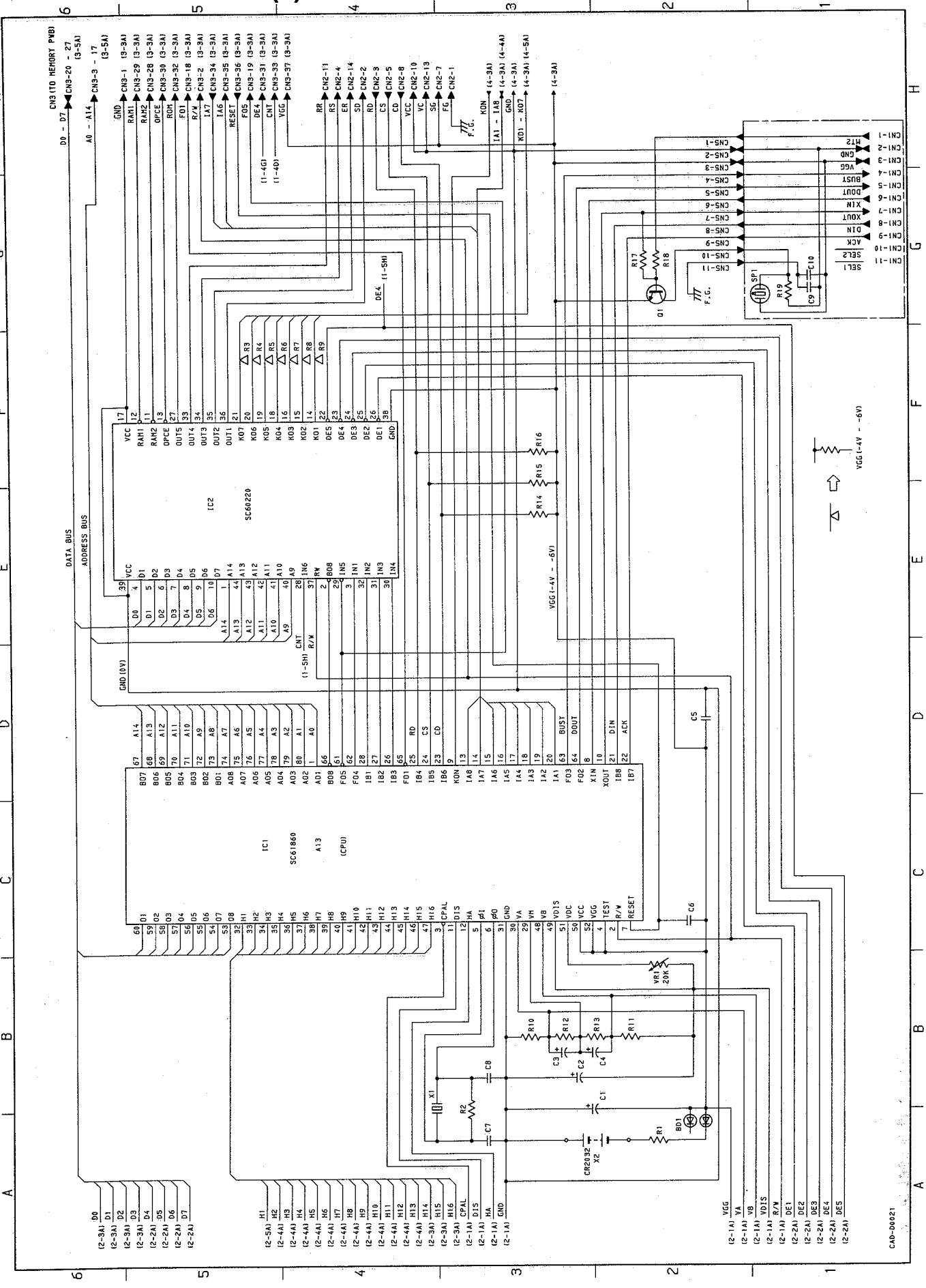
PCOS type CE-202M



Flat package LSI, CE-201M and CE-202M

10. CIRCUIT DIAGRAM (1)

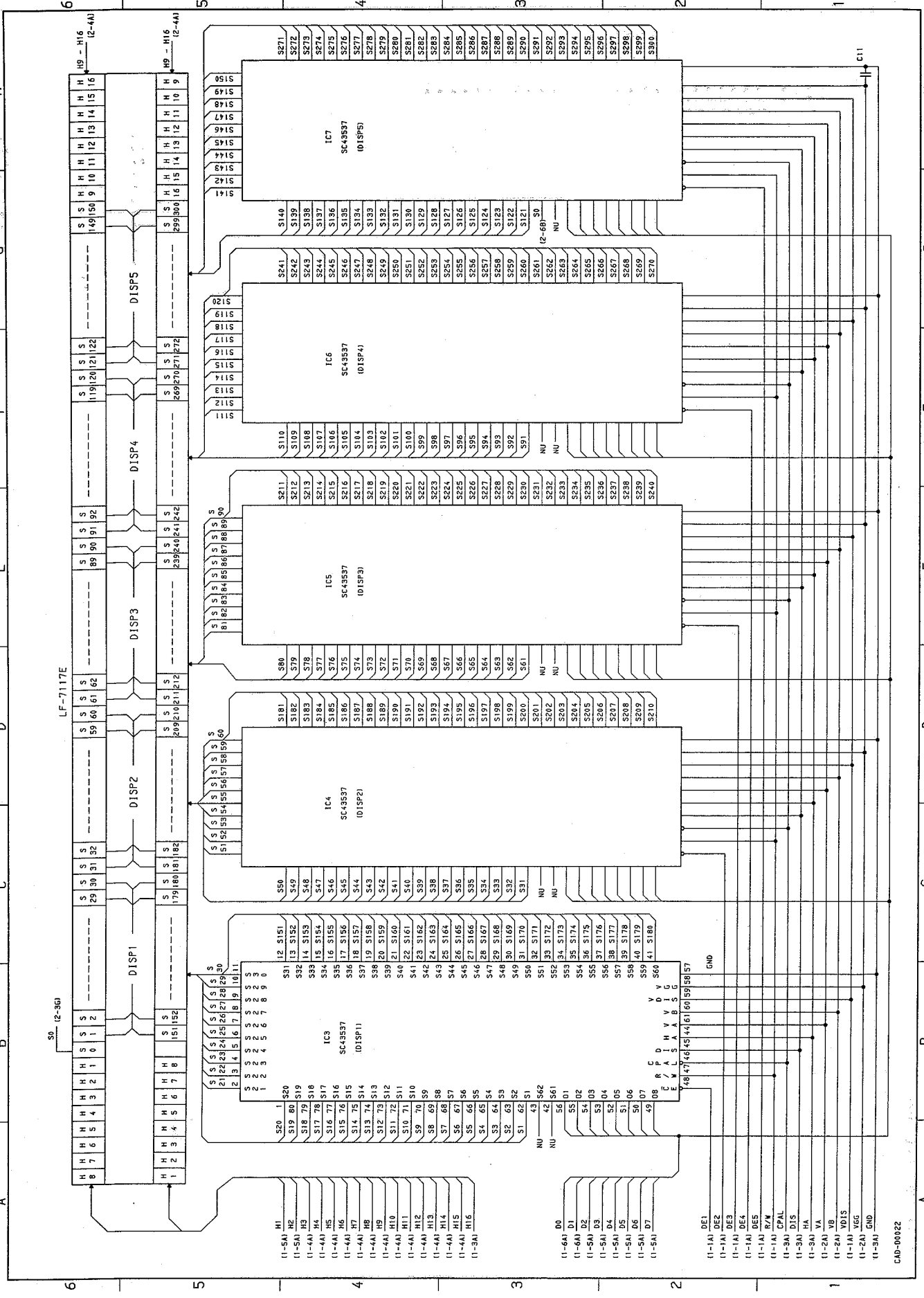
(C) MARCH 83 YUDAS



1. PC-1350 CPU circuit

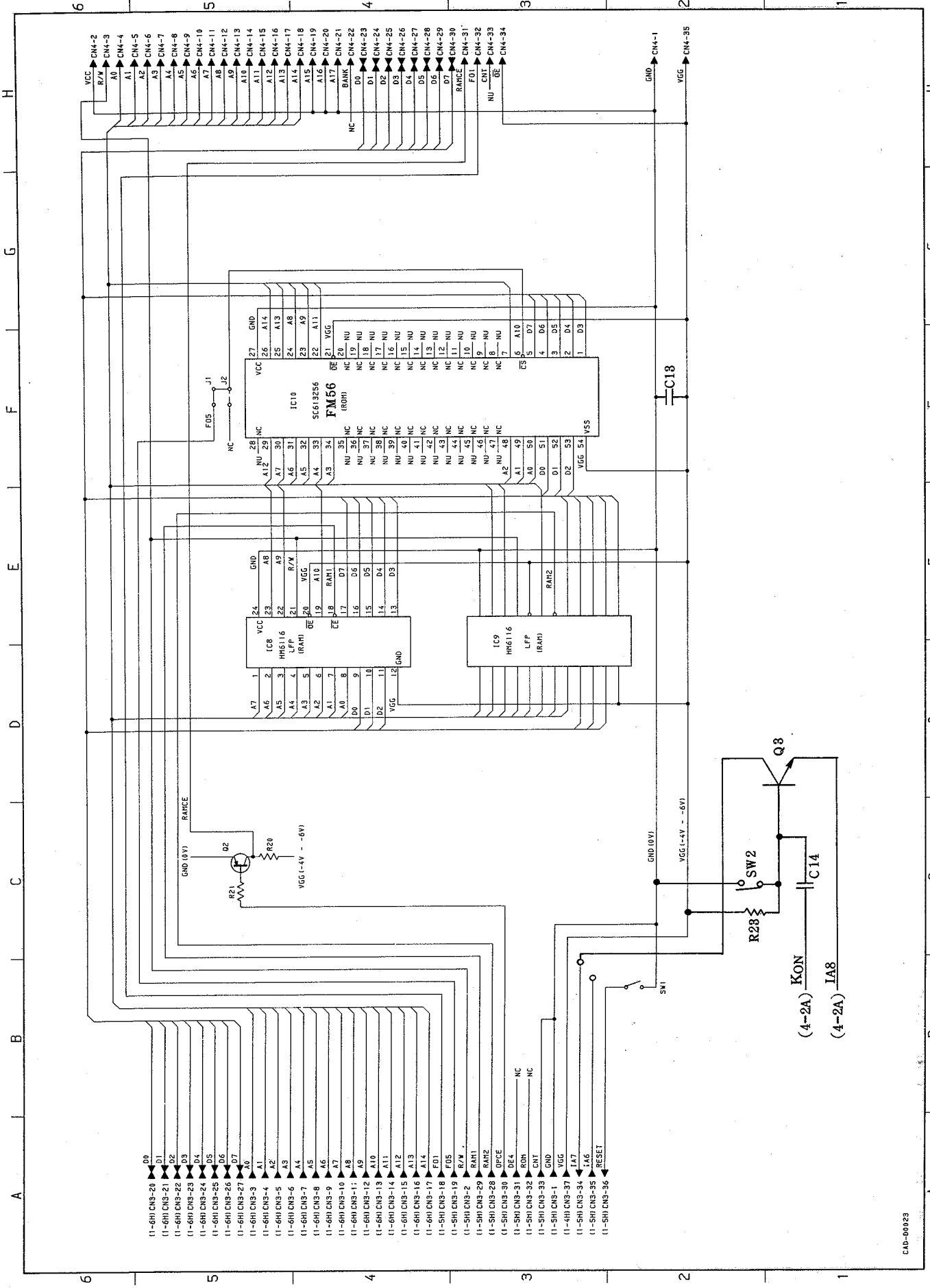
CIRCUIT DEAGRAM (2)

2. PC-1350 display circuit



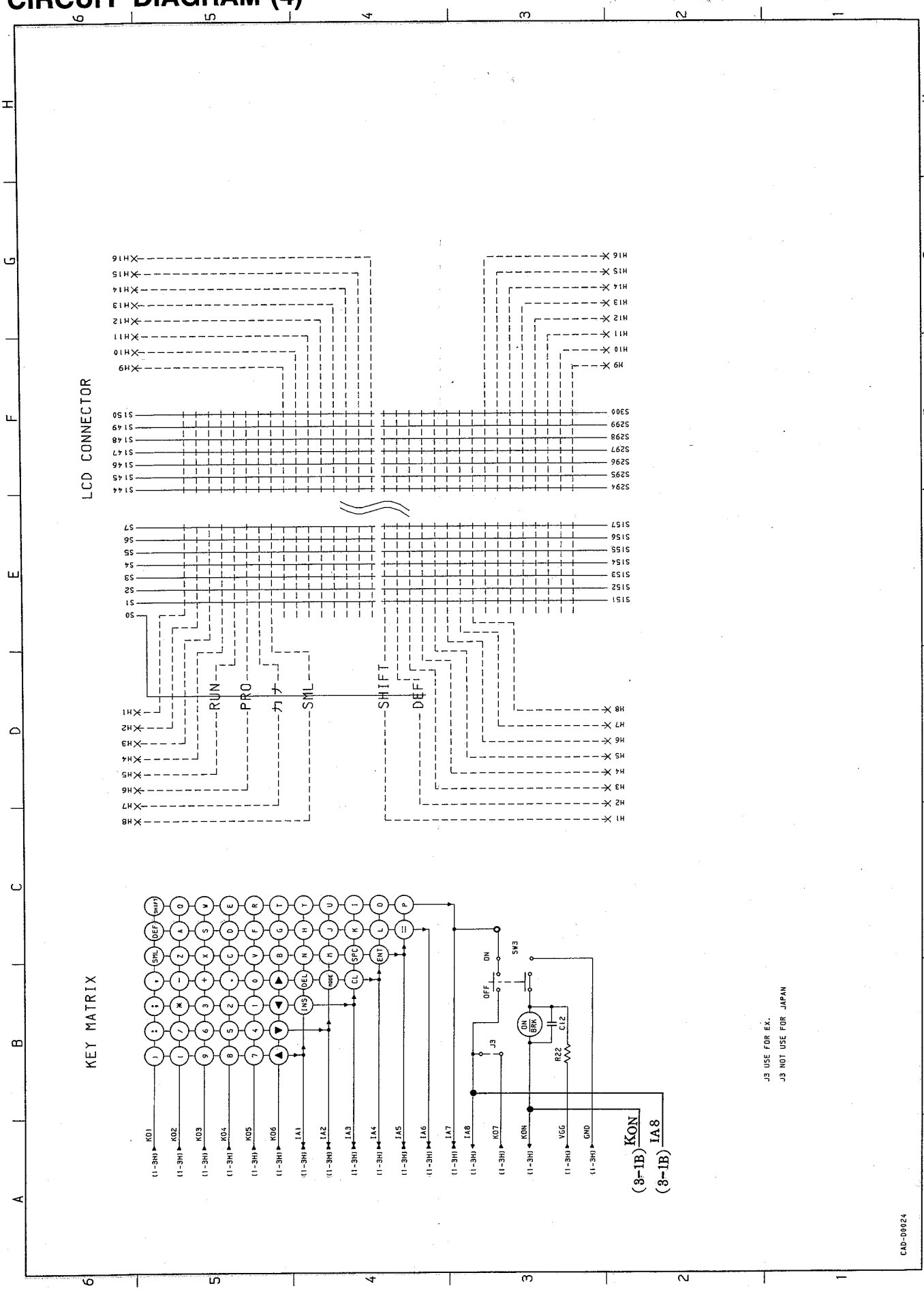
CIRCUIT DIAGRAM (3)

SAMPLE RECORD



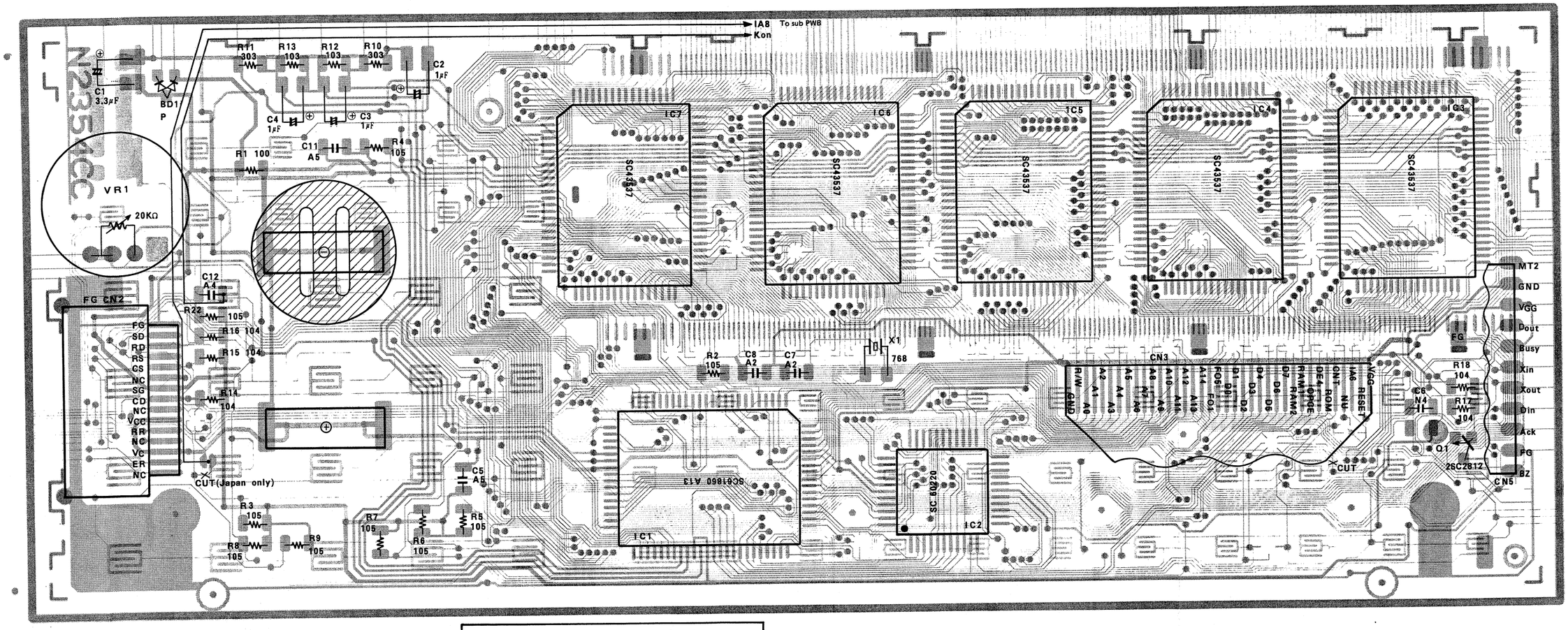
3. PC-1350 memory circuit (ROM: SC613256)

CIRCUIT DIAGRAM (4)



4. PC-1350 key/LCD matrix circuits

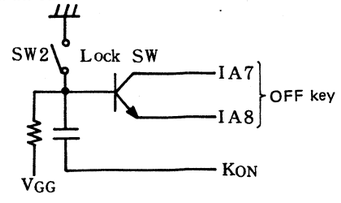
11. PARTS AND SIGNAL LAYOUT CHART (MAIN PWB)



Jumper and subsidiary board circuit description

It is the circuit to prevent change in the RAM card contents which may occur when the RAM card is replaced in the following condition:

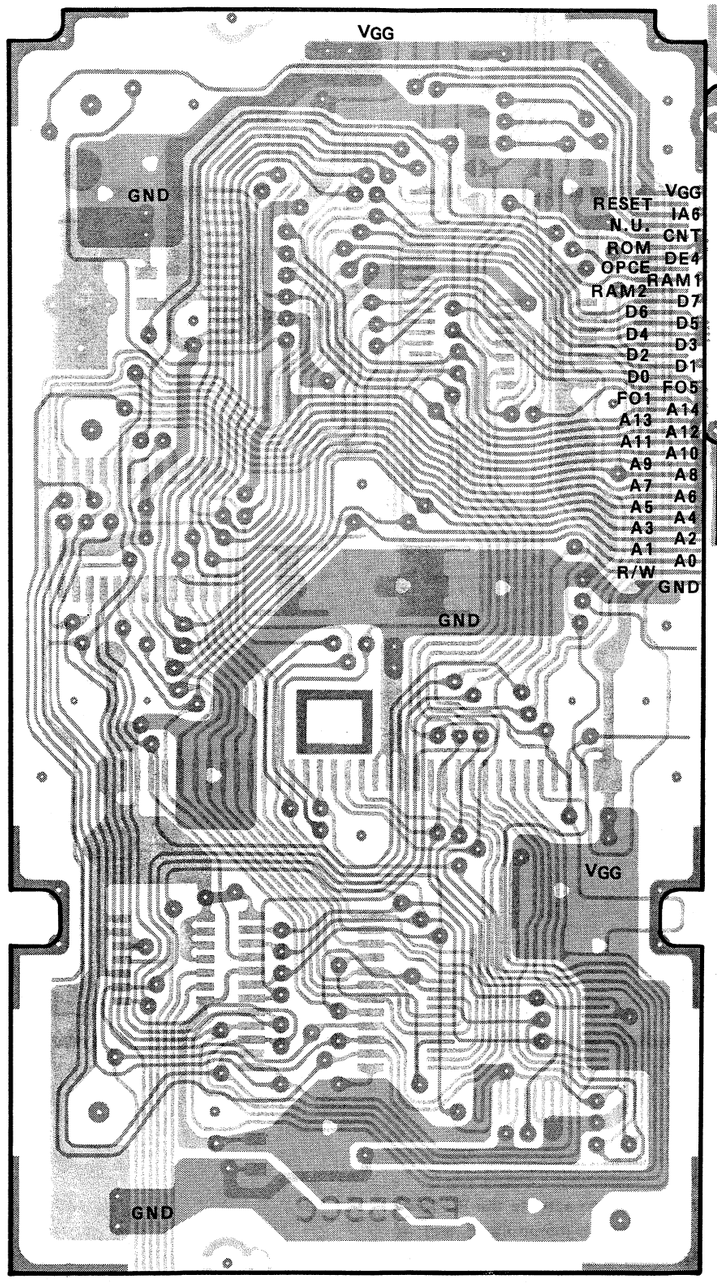
(1) during auto-power-off, or,
(2) with the PC-1350 in power on condition to replace the RAM card.

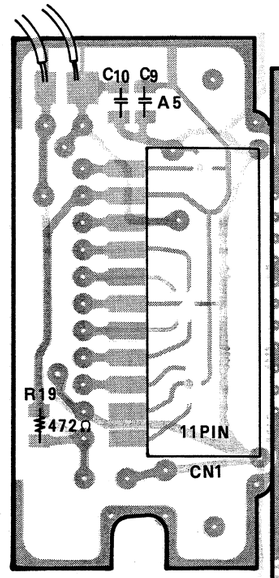


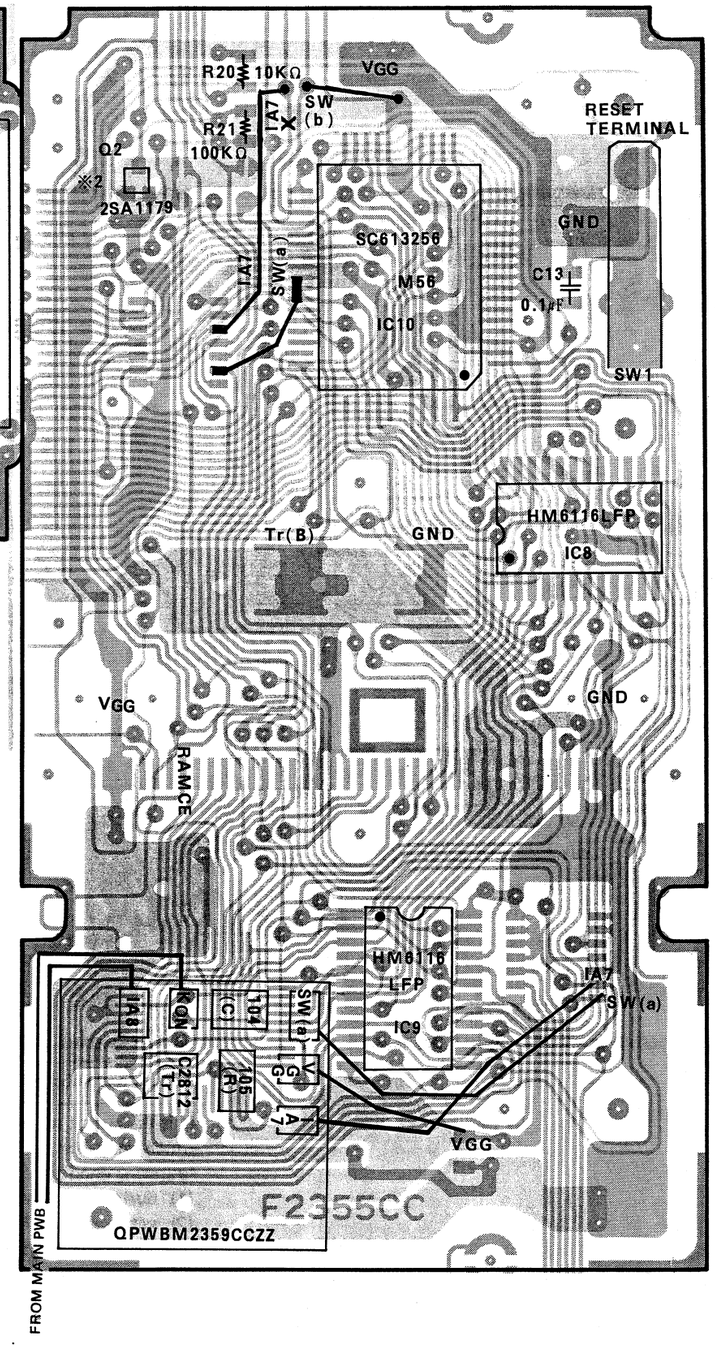
(1) During auto-power-off
A pulse is sent through KON to actuate the PC-1350 when the card cover lock switch is manipulated, and, at the same time, the OFF key is activated to turn power off.

(2) During displaying or run
A pulse to the BRK key line (to KON) by the lock switch to release the PC-1350 from running state (BREAK action), and, at the same time, the OFF key is activated to turn power off.

Parts and signal layout chart (memory PWB)



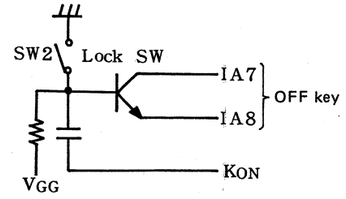




Jumper and subsidiary board circuit description

It is the circuit to prevent change in the RAM card contents which may occur when the RAM card is replaced in the following condition:

(1) during auto-power-off, or,
(2) with the PC-1350 in power on condition to replace the RAM card.

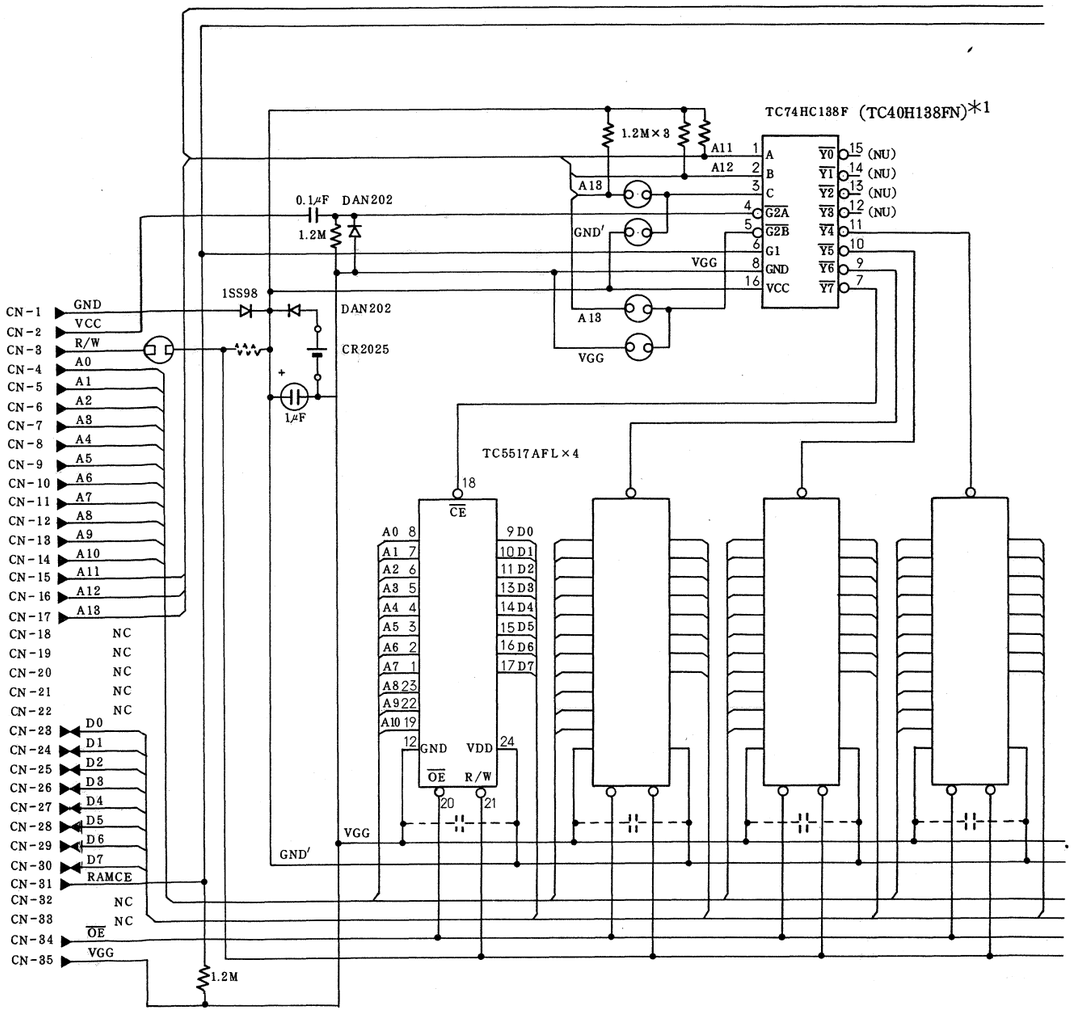


(1) During auto-power-off
A pulse is sent through KON to actuate the PC-1350 when the card cover lock switch is manipulated, and, at the same time, the OFF key is activated to turn power off.

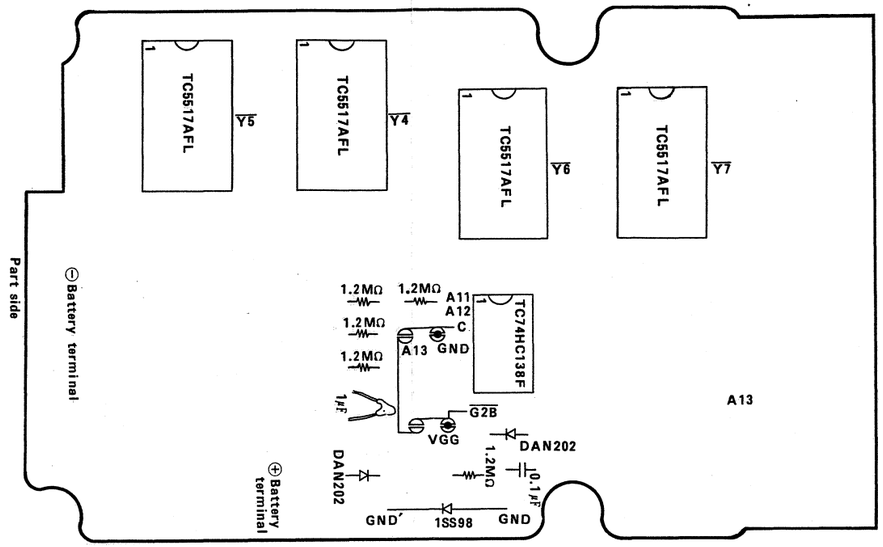
(2) During displaying or run
A pulse to the BRK key line (to KON) by the lock switch to release the PC-1350 from running state (BREAK action), and, at the same time, the OFF key is activated to turn power off.

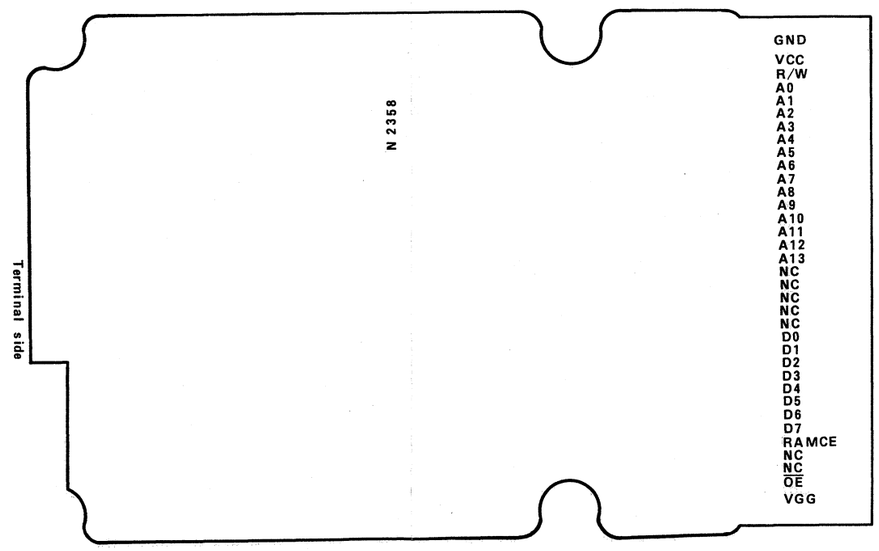
*1: M5-M7 used for the 2SA1179.

12. CE-201M CIRCUIT DIAGRAM/PARTS LAYOUT CHART (FLAT PACKAGE LSI)

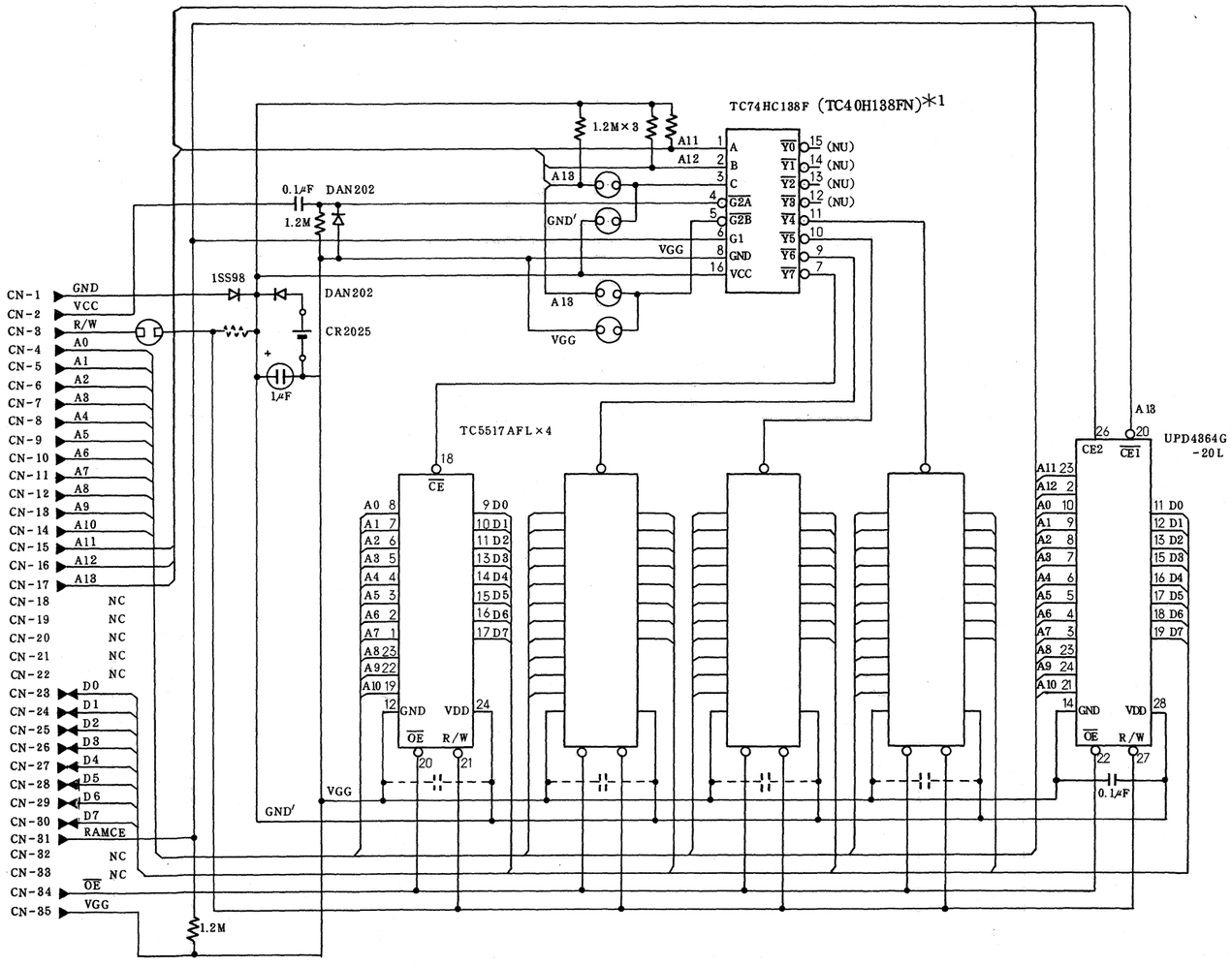


*1: On account of parts procurement situation, the TC40H138FN was used as a substitution of the TC74HC138F for some of CE-201M and CE-202M in earlier productions. When the TC40H-138FN on is in failure, either the TC40H138FN or TC74HC138F can be used as a replacement. But when the TC74HC138F is in use, it has to be replaced by the TC74HC138F, not the TC-40H138FN which may impede proper operation due to variation in access time by the RAM chip used.

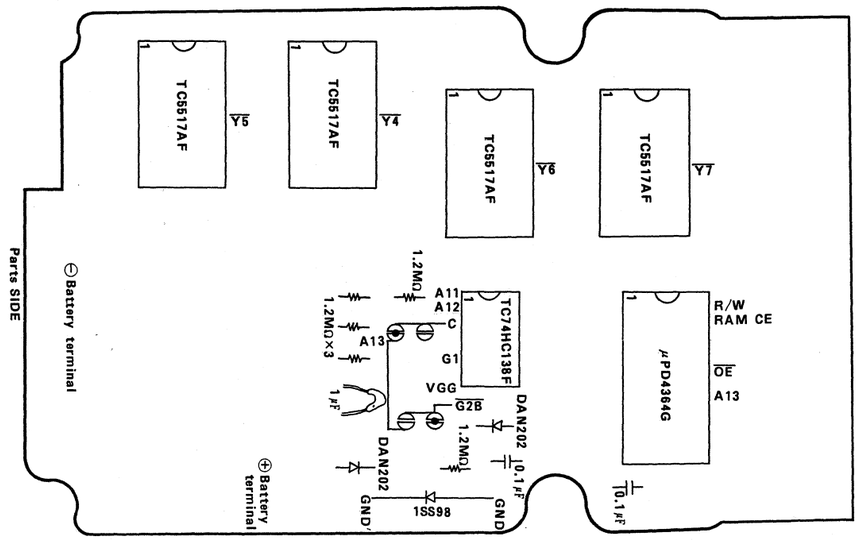


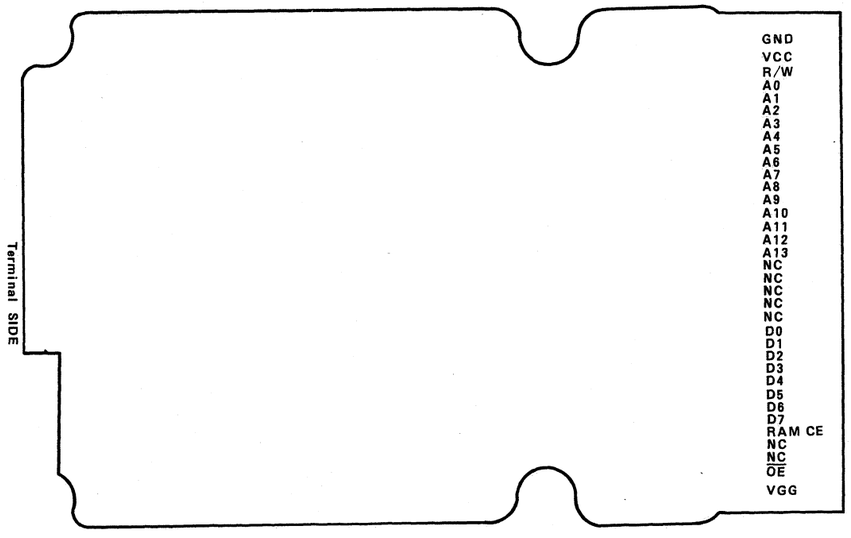


13. CE-202M CIRCUIT DIAGRAM/PARTS LAYOUT CHART (FLAT PACKAGE LSI)



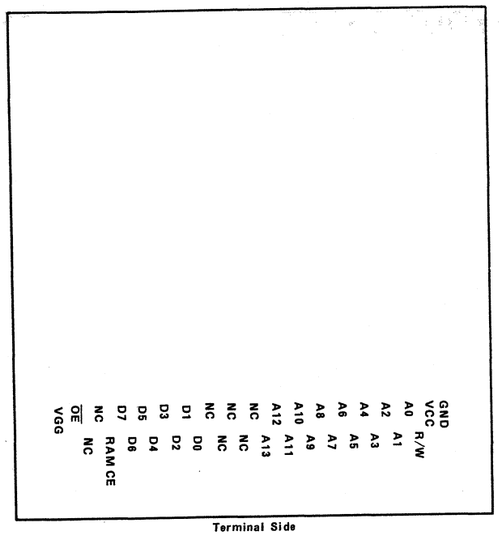
*1: On account of parts procurement situation, the TC40H138FN was used as a substitution of the TC74HC138F for some of CE-201M and CE-202M in earlier productions. When the TC40H-138FN on is in failure, either the TC40H138FN or TC74HC138F can be used as a replacement. But when the TC74HC138F is in use, it has to be replaced by the TC74HC138F, not the TC-40H138FN which may impede proper operation due to variation in access time by the RAM chip used.



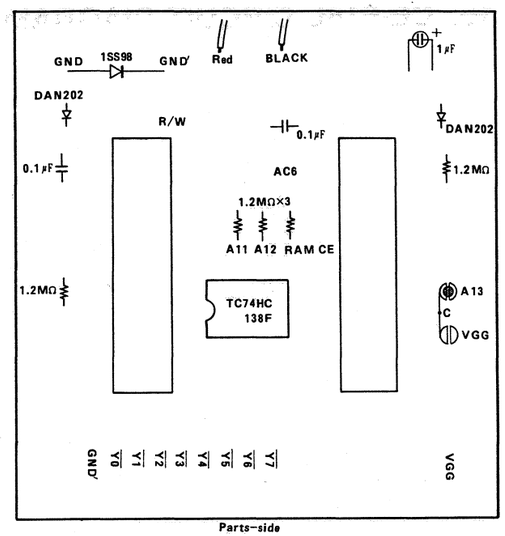


14. CE-202M CIRCUIT DIAGRAM/PARTS LAYOUT CHART (PCOS TYPE)

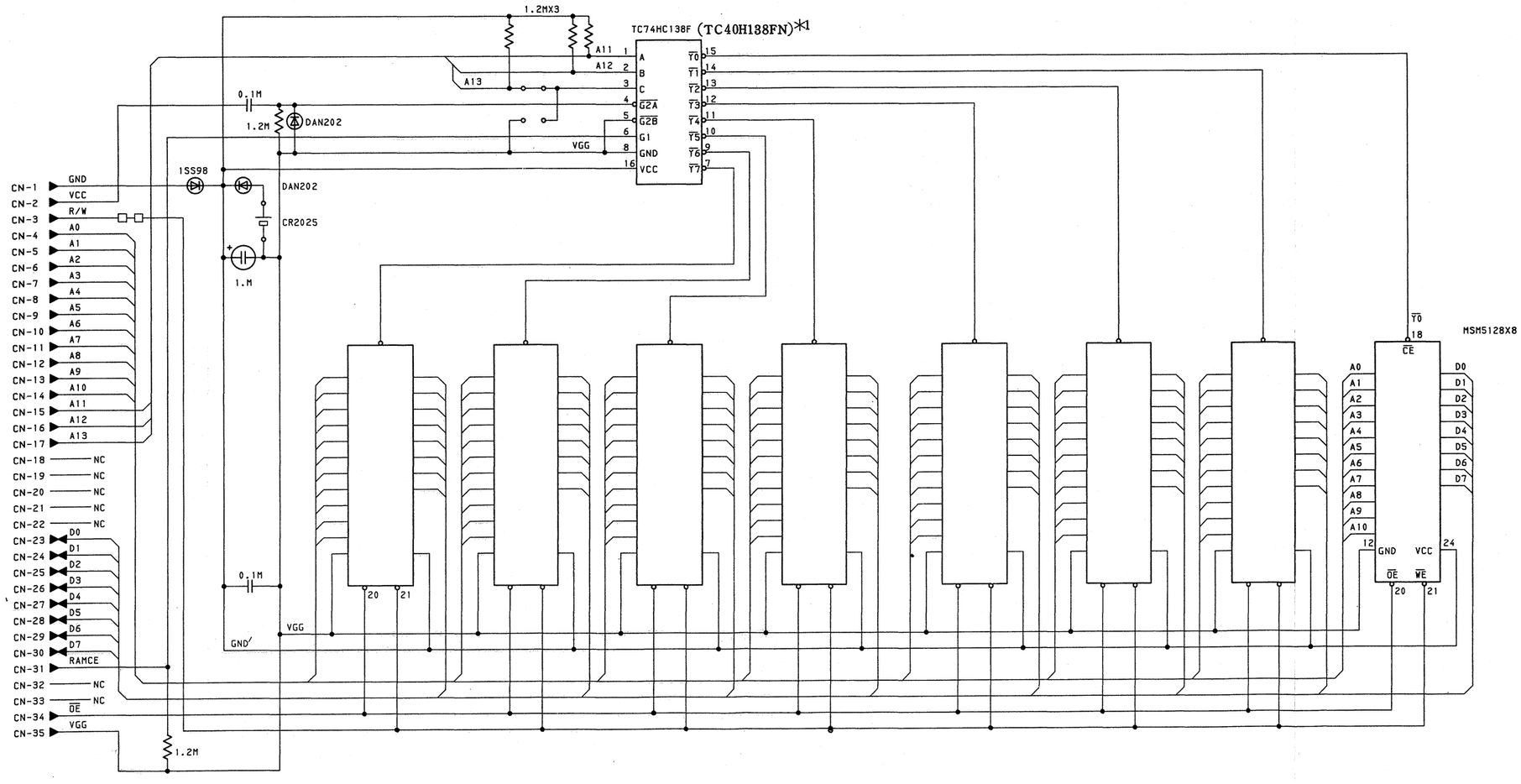
*1: On account of parts procurement situation, the TC40H138FN was used as a substitution of the TC74HC138F for some of CE-201M and CE-202M in earlier productions. When the TC40H-138FN on is in failure, either the TC40H138FN or TC74HC138F can be used as a replacement. But when the TC74HC138F is in use, it has to be replaced by the TC74HC138F, not the TC-40H138FN which may impede proper operation due to variation in access time by the RAM chip used.



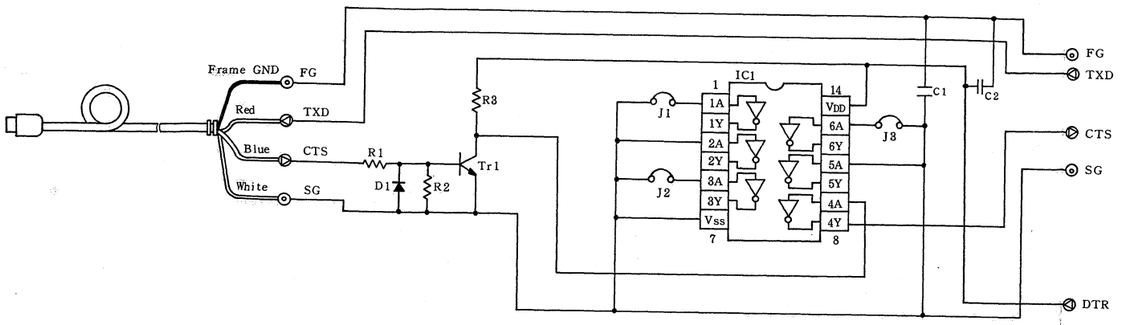
Terminal Side



Parts-side

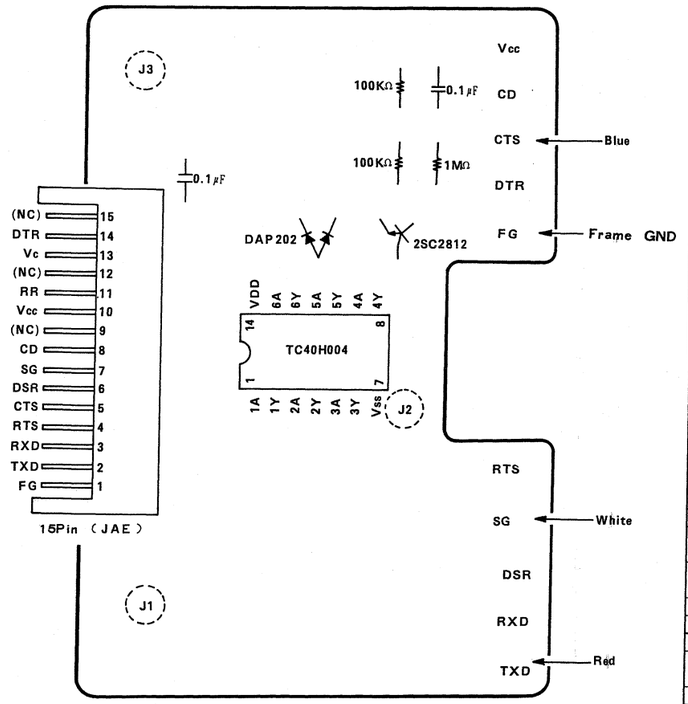


15. CE-516L CIRCUIT DIAGRAM/PARTS LAYOUT CHART



15-pin connector pin description (to PC-1350)

Pin No.	Signal name		Signal flow	PC-1350 side signal name
1	FG	Frame ground		
2	TXD	Transmit data	←	(SD)
3	RXD	Receive data	→	(RD)
4	RTS	Request to serd	←	(RS)
5	CTS	Clear to serd	→	(CS)
6	DSR	Data set ready	→	(DR)
7	SG	Signal ground		(SG)
8	CD	Signal datector	→	(CD)
9	(NC)			
10	V_{CC}	(External gate power supply)	(←)	
11	RR	Receive ready	←	
12	(NC)			
13	V_C	(1350 driving)	(→)	
14	DTR	Data terminal ready	←	(ER)
15	(NC)			



IC1	TC40H004	VHITC40H004FN
Tr1	2SC2812	VS2SC2812-H1T
D1	DAP202	RH-DZ1005CCN1
R1	100KΩ	VRSTP2BD104JT
R2	100KΩ	VRSTP2BD104JT
R3	1MΩ	VRSTP2BD105JT
C1	0.1μF	RC-CZ1021CCN1
C2	0.1μF	RC-CZ1021CCN1

16. PARTS LIST AND GUIDE

1 外観部品 (Exteriors)

NO.	PARTS CODE	PRICE RANK Ex	PRICE RANK Ja	NEW MARK	PART RANK	DESCRIPTION	
1	GFTAU1309CCZZ		DL	N	D	Card cover	(Japan) カードフタ
	GFTAU1309CC01	AE		N	D	Card cover	(Export) カードフタ
2	HPNLC1044CCZZ	AB	DC	N	C	Operation caution panel	カードソウサチュウイパネル
3	PTPEH1090CCZZ	AA	DA		C	Adhesive tape for panel	パネル コテイ テープ
4	LFiX-1190CCZZ		DD	N	C	Card fixing plate	(Japan) カードオサエイタ
	LFiX-1190CC01	AC		N	C	Card fixing plate	(Export) カードオサエイタ
5	XBBSF20P08000	AA	DA		C	Screw (2×8)	ビス
6	DUNTG8035CCZZ		EA	N	D	Bottom cabinet unit	(Japan) ソコキャビネットユニット
	DUNTG8041CCZZ	AK		N	D	Bottom cabinet unit	(Export) ソコキャビネットユニット
7	GLEGG1031CCZZ	AA	DA	N	C	Rubber foot	ゴムアシ
8	QTANZ1478CCZZ	AB	DB	N	C	Power terminal	デンゲンタンシ
9	LHLDZ1215CCZZ		DD	N	C	Connector holder	(Japan) コネクターホルダー
	LHLDZ1215CC01	AC		N	C	Connector holder	(Export) コネクターホルダー
10	PGUMS1549CCZZ	AE	DK	N	C	PWB card connector	PWB-カードコネクター
11	QCNTM1064CCZZ	AA	DA	N	C	Slide switch terminal	スライド スイッチ コンタクト
12	MSLiP1031CCZZ		DC	N	C	Slide switch knob	(Japan) スライド スイッチ ツマミ
	MSLiP1031CC01	AC		N	C	Slide switch knob	(Export) スライド スイッチ ツマミ
13	PTPEH1213CCZZ	AB	DB		C	Tape	ハツオンタイ コテイテープ
14	RALMB1030CCZZ	AD	DF		B	Buzzer	ブザー
15	LX-BZ1116CCN1	AA	DA	N	C	Screw (2×4.5)	ビス
16	LANGK1564CCZZ	AC	DD	N	C	Pressure angle	アッチャクイタ オサエ
17	PSPAP1269CCZZ	AA	DA	N	C	Pressure spacer	アッチャクスペーサー
18	DUNTK8040CCZZ	BS	NJ	N	E	Memory PWB unit (ROM : LH535624)	メモリーキバンユニット
	DUNTK8176CCZZ	BS	NJ	N	E	Memory PWB unit (ROM : SC613256FG76)	メモリーキバンユニット
19	LX-BZ1120CCZZ	AA	DA		C	Screw	ビス
20	QTANZ1406CCZZ	AB	DC		C	Battery terminal (⊕⊖)	デンチタンシ
21	LANGK1558CCZZ	AE	DJ	N	C	Angle A	アングル A
22	MSPRC1276CCZZ	AA	DA	N	C	Card cover spring	カードブタバネ
23	LX-BZ1184CCZZ	AA	DA	N	C	Screw	ビス
24	QPWBM2359CCZZ	AK	DY	N	C	FPC	FPC
25	PGUMS1563CCZZ	AA	DA	N	C	Pressure rubber	アッチャクゴム
26	LANGK1565CCZZ	AC	DD	N	C	Pressure angle	アッチャクイタ ウケ
27	LX-BZ1147CCZZ	AA	DA		C	Screw	ビス
28	LANGK1566CCZZ	AC	DE	N	C	Angle	セイデンバン
29	QCNCW1306CC1B	AK	DY		C	Connector (11 pin)	コネクター
30	QCNW-1297CCZZ	AC	DD	N	C	Lead wire (11 pin)	ヒラカクジャンパー
31	LX-NZ1010CCZZ	AA	DA		C	Nut	ナット
32	LCHSS1163CCZZ	AE	DK	N	C	Chassis	シャーシ
33	QCNCW1368CC1E	AM	EF	N	C	Connector (15pin)	コネクター
34	DUNTK8039CCZZ	BY	TU	N	E	Main PWB unit	メインキバンユニット
35	PGUMM1548CCZZ	AH	DV	N	C	Spring rubber	ゴムスプリング
36	PGUMS1550CCZZ	AC	DE	N	C	PWB-LCD connector	PWB-LCDコネクター
37	DUNT-8038CCZZ	AX	FX	N	E	LCD unit	LCD ユニット
38	PTPEH1039CCZZ	AA	DA		C	Adhesive tape for polarized filter	ヘンコウフィルターコテイテープ
39	PFiLV1520CCZZ	AE	DL	N	C	Polarized filter	ヘンコウフィルター
40	PSLDP1473CCZZ	AC	DE	N	C	Display mask	ヒョウジマスク
41	PFiLW1519CCZZ	AD	DG	N	C	Acryl filter	アクリルフィルター
42	MSPRC1206CCZZ	AA	DA		C	Spring	セイデンスプリング
43	DUNTG8036CCZZ		FE	N	D	Top cabinet unit	(Japan) ウエキャビネットユニット
	DUNTG8042CCZZ	AS		N	D	Top cabinet unit	(Export) ウエキャビネットユニット
44	MSLiP1020CC04		DB		C	Slider	(Japan) スライダー <グレイ>
	MSLiP1020CC01	AB			C	Slider	(Export) スライダー
45	XUBSD20P08000	AA	DA		C	Screw (2×8)	ビス
46	PSHEZ1144CCZZ	AA	DA	N	C	Nut fixing sheet	ナットオサエシート
47	GFTAA1287CC03		DC	N	D	Connector cover	(Japan) コネクターフタ
	GFTAA1287CC04	AB		N	D	Connector cover	(Export) コネクターフタ
48	JKNBZ1715CC07		DK	N	C	Key top (Function keys)	(Japan) キートップ
	JKNBZ1603CC09	AF		N	C	Key top (Function keys)	(Export) キートップ
49	JKNBZ1874CC03	AF	DQ		C	Key top (MODE key,48pcs/set)	キートップ
50	JKNBZ1909CC01	AF	DQ		C	Key top (SHIFT key,48pcs/1set)	キートップ
51	JKNBZ1916CC01	AF	DQ		C	Key top (CLS key,48pcs/1set)	キートップ
52	JKNBZ1873CC03		DU	N	C	Key top (Type writer keys)	(Japan) キートップ
	JKNBZ1917CC01	AH		N	C	Key top (Type writer keys)	(Export) キートップ
53	PCAPH1016CCZZ	AA	DA	N	C	Rubber cap	ゴム キャップ

2 付属品・その他部品 (Accessory & Other parts)

NO.	PARTS CODE	PRICE RANK Ex	PRICE RANK Ja	NEW MARK	PART RANK	DESCRIPTION	
1	GCASP1105CCZZ		DN	N	C	Hard case	(Japan) ハードケース
	GCASP1105CC01	AF		N	D	Hard case	(Export) ハードケース
2	LPLTP1135CCZZ	AB	DB		C	Tem plate	テンプレート
3	SPAKA8802CCZZ	AD	DH	N	D	Packing cushion for set	SETヨウ アド
4	SPAKC8803CCZZ		DX	N	D	Packing case	(Japan) パッキングケース
	SPAKC8805CCZZ	AH		N	D	Packing case	(Export) パッキングケース
5	TiNSJ4217CCZZ		FQ	N	D	Instruction book	(Japan) トリアツカイセツメイショ
	TiNSE4219CCZZ	AV	FP	N	D	Instruction book	(Export) トリアツカイセツメイショ
6	TLABH2027CCZZ		DC	N	C	Operation label	(Japan) ソウサラベル

2 付属品・その他部品 (Accessory & Other parts)

NO.	PARTS CODE	PRICE RANK Ex	PRICE RANK Ja	NEW MARK	PART RANK	DESCRIPTION	
6	TLABH2028CCZZ	AC		N	C	Operation label	(Export) ソウサラベル
7	TLABJ1083CCZZ	AA	DA		C	Label (U.K. only) (Made in Japan)	ゲンサンチラベル
8	TLABZ1295CCZZ	AA	DA		C	Name label	ネーム ラベル
9	TLSTS1006CCZZ		DA		D	(Japan type only)	サービスリスト
10	TCADZ1689CCZZ		DD		D	Card (Japan type only)	ハンソクカード

3 メイン基板ユニット (Main PWB unit)

NO.	PARTS CODE	PRICE RANK Ex	PRICE RANK Ja	NEW MARK	PART RANK	DESCRIPTION	
1	DUNT−8038CCZZ	AX	FX	N	E	LCD unit	LCD ユニット
2	MSPRC1277CCZZ	AA	DA	N	C	Connector spring	コネクターバネ
3	PGUMS1550CCZZ	AC	DE	N	C	PWB−LCD Connector	PWB−LCDコネクタ
4	PZETL1313CCZZ	AA	DA		C	Spacer (Round)	スペーサー
5	QCNCW1368CC1E	AM	EF	N	C	Connector (15pin)	コネクター
6	QPWBM2359CCZZ	AK	DY	N	C	FPC	FPC
7	QTANZ1289CCZZ	AB	DB		C	Battery terminal	バッテリー タンシ
8	RC−CZ1021CCZZ	AB	DB		C	Capacitor (0.1μF)	コンデンサー
9	RC−CZ1035CCZZ	AC	DD		C	Capacitor (100pF)	コンデンサー
10	RC−CZ1037CCZZ	AB	DB		C	Capacitor (0.01μF)	コンデンサー
11	RC−CZ1047CCZZ	AB	DB		C	Capacitor (0.033μF)	コンデンサー
12	RC−SZ1007CCZZ	AF	DL		C	Capacitor (1μF)	コンデンサー
13	RC−SZ1021CCZZ	AC	DE		C	Capacitor (10WV 3.3μF)	コンデンサー
14	RCRSZ1063CCZZ	AF	DM		B	Crystal (768KHz)	クリスタル
15	RH−DZ1005CCZZ	AC	DC		B	Diode (DAP202)	ダイオード
16	RVR−Z2400QCZZ	AF	DN		B	Variable resistor	ボリウム
17	VHiSC43537LDN	AW	FS		B	IC (SC43537LDN)	IC
18	VHiSC60220/−1	AW	FT		B	IC (SC60220)	IC
19	VHiSC61860A13	BB	GL		B	IC (SC61860A13)	IC
20	VRS−TP2BD100J	AA	DA		C	Resistor (1/8W 10Ω ±5%)	テイコウ
21	VRS−TP2BD103J	AA	DA		C	Resistor (1/8W 10KΩ ±5%)	テイコウ
22	VRS−TP2BD104J	AA	DA		C	Resistor (1/8W 100KΩ ±5%)	テイコウ
23	VRS−TP2BD105J	AA	DA		C	Resistor (1/8W 1.0MΩ ±5%)	テイコウ
24	VRS−TP2BD303J	AA	DA		C	Resistor (1/8W 30KΩ ±5%)	テイコウ
25	VS2SC2812−H−1	AB	DC		B	Transistor	トランジスター
	ユニット (Unit)						
901	DUNTK8039CCZZ	BY	TU	N	E	Main PWB unit	メインキバンユニット

4 メモリー基板ユニット (Memory PWB unit)

NO.	PARTS CODE	PRICE RANK Ex	PRICE RANK Ja	NEW MARK	PART RANK	DESCRIPTION	
1	QCNCW1306CC1B	AK	DY		C	Connector (11pin)	コネクター
2	QCNTM1051CCZZ	AB	DB		C	Reset terminal	リセット タンシ
3	QCNW−1297CCZZ	AC	DD	N	C	Lead wire (12pin)	ヒラカクジャンパー
4	QTANZ1478CCZZ	AB	DB	N	C	Power terminal	デンゲンタンシ
5	RC−CZ1021CCZZ	AB	DB		C	Capacitor (0.1μF)	コンデンサー
6	RH−TX1017CCN1	AB	DB		B	Transistor	トランジスター
7	VCTYPU1NX104M	AB	DB		C	Capacitor (12WV 0.10μF)	コンデンサー
8	VHiHM6116//−C	AZ	GG		B	IC (HM6116)	IC
9	VHiLH535624−1	BK	HV	N	B	IC (LH535624)	IC
10	VHi613256FM56	BK	HV	N	B	IC (613256FM56)	IC
11	VRD−ST2BY472J	AA	DA		C	Resistor (1/8W 4.7KΩ ±5%)	テイコウ
12	VRS−TP2BD103J	AA	DA		C	Resistor (1/8W 10KΩ ±5%)	テイコウ
13	VRS−TP2BD104J	AA	DA		C	Resistor (1/8W 100KΩ ±5%)	テイコウ
14	VRS−TP2BD472J	AA	DA		C	Resistor (1/8W 4.7KΩ ±5%)	テイコウ
	ユニット (Unit)						
901	DUNTK8040CCZZ	BS	NJ	N	E	Memory PWB unit (ROM : LH535624)	メモリーキバンユニット
	DUNTK8176CCZZ	BS	NJ	N	E	Memory PWB unit (ROM : SC613256FG76)	メモリーキバンユニット
902	DUNTK8295CCZZ	AG	DS	N	E	Sub PWB unit	カメキバン ユニット

JKNBZ1909CC01

SHIFT	SHIFT	SHIFT	SHIFT	SHIFT	SHIFT
SHIFT	SHIFT	SHIFT	SHIFT	SHIFT	SHIFT
SHIFT	SHIFT	SHIFT	SHIFT	SHIFT	SHIFT
SHIFT	SHIFT	SHIFT	SHIFT	SHIFT	SHIFT
SHIFT	SHIFT	SHIFT	SHIFT	SHIFT	SHIFT
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SHIFT	SHIFT	SHIFT	SHIFT	SHIFT	SHIFT
SHIFT	SHIFT	SHIFT	SHIFT	SHIFT	SHIFT

JKNBZ1874CC03

MODE	MODE	MODE	MODE	MODE	MODE
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MODE	MODE	MODE	MODE	MODE	MODE
MODE	MODE	MODE	MODE	MODE	MODE
MODE	MODE	MODE	MODE	MODE	MODE
MODE	MODE	MODE	MODE	MODE	MODE
MODE	MODE	MODE	MODE	MODE	MODE
MODE	MODE	MODE	MODE	MODE	MODE

JKNBZ1916CC01

CLS	CLS	CLS	CLS	CLS	CLS
CLS	CLS	CLS	CLS	CLS	CLS
CLS	CLS	CLS	CLS	CLS	CLS
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CLS	CLS	CLS	CLS	CLS	CLS
CLS	CLS	CLS	CLS	CLS	CLS
CLS	CLS	CLS	CLS	CLS	CLS
CLS	CLS	CLS	CLS	CLS	CLS

(Japan) JKNBZ1715CC07

7	8	9	(	)
4	5	6	/	:
1	2	3	*	;
0	•	+	−	,

(Japan) JKNBZ1873CC03

↓	↑	◄	►	DEL	INS	BRK	DEF	カナ		
Q	W	E	R	T	Y	U	I	O	P	
A	S	D	F	G	H	J	K	L	=	
Z	X	C	V	B	N	M	SPC	ENTER		

(EX.) JKNBZ1603CC09

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1	2	3	*	;
0	•	+	−	,

(EX.) JKNBZ1917CC01

↓	↑	◄	►	DEL	INS	BRK	DEF	SML		
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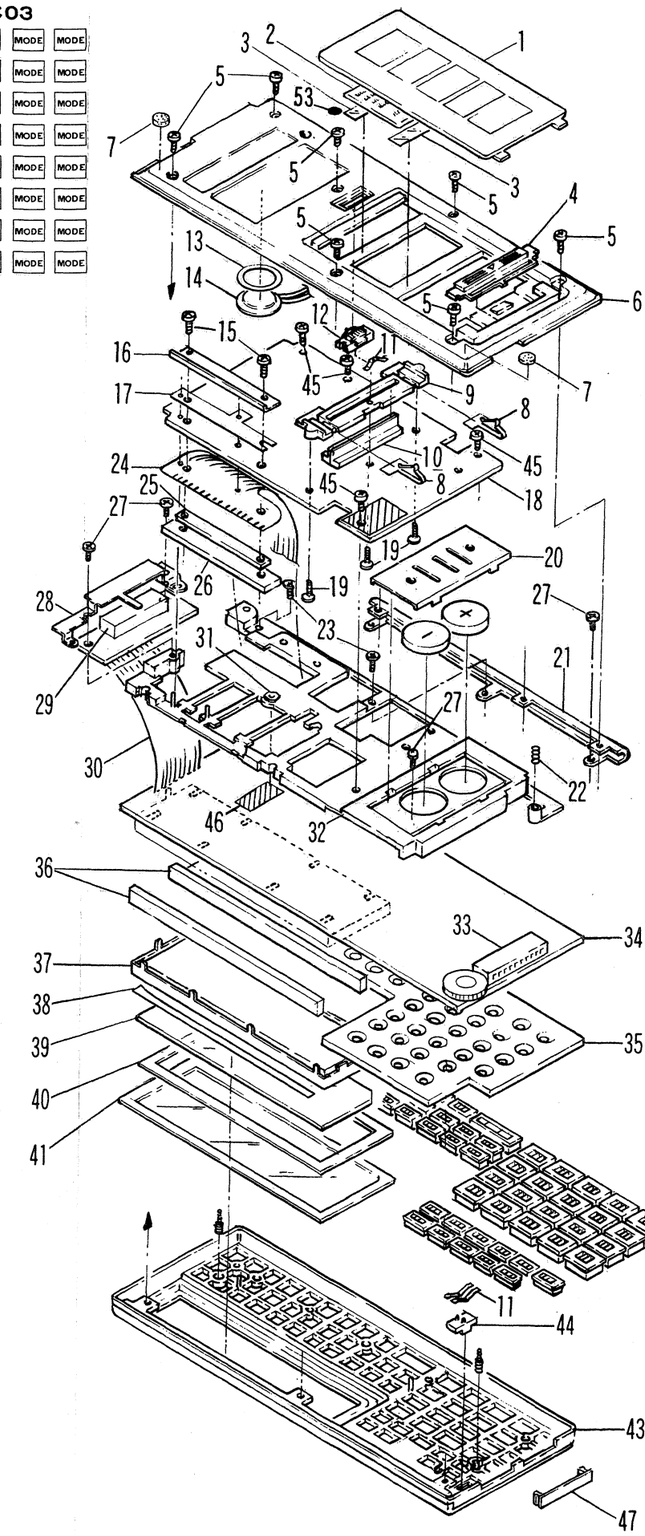
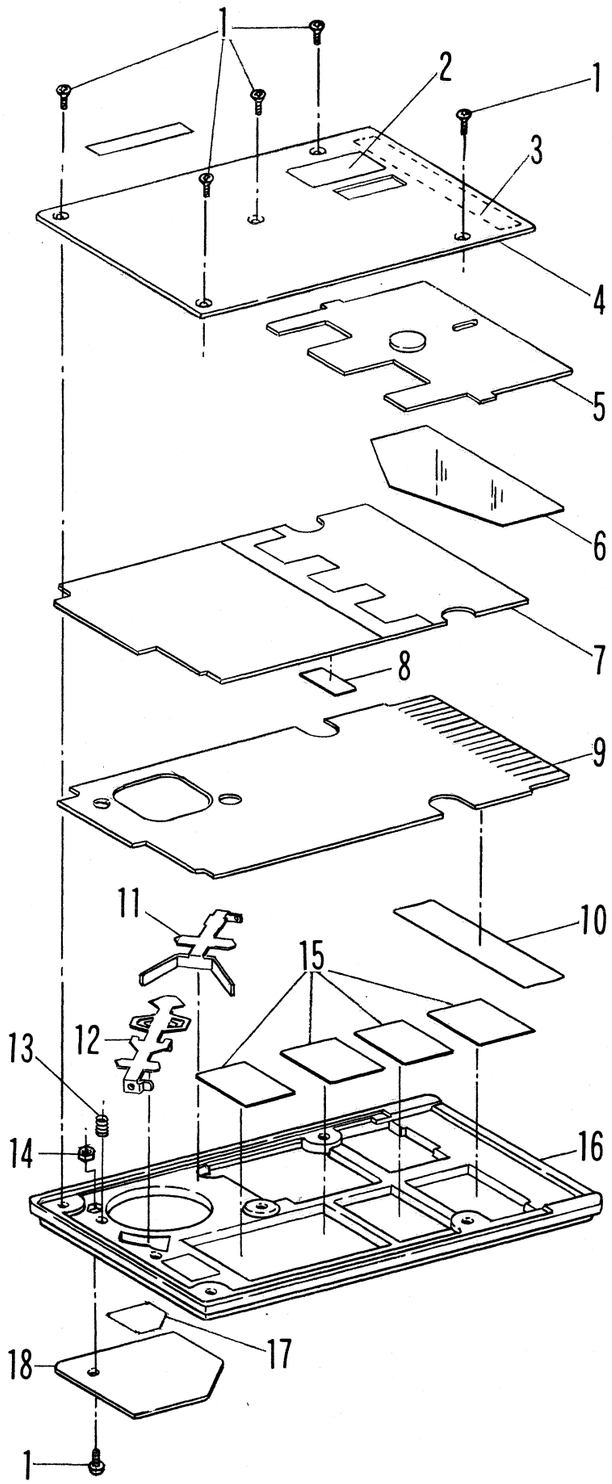
Z	X	C	V	B	N	M	SPC	ENTER		



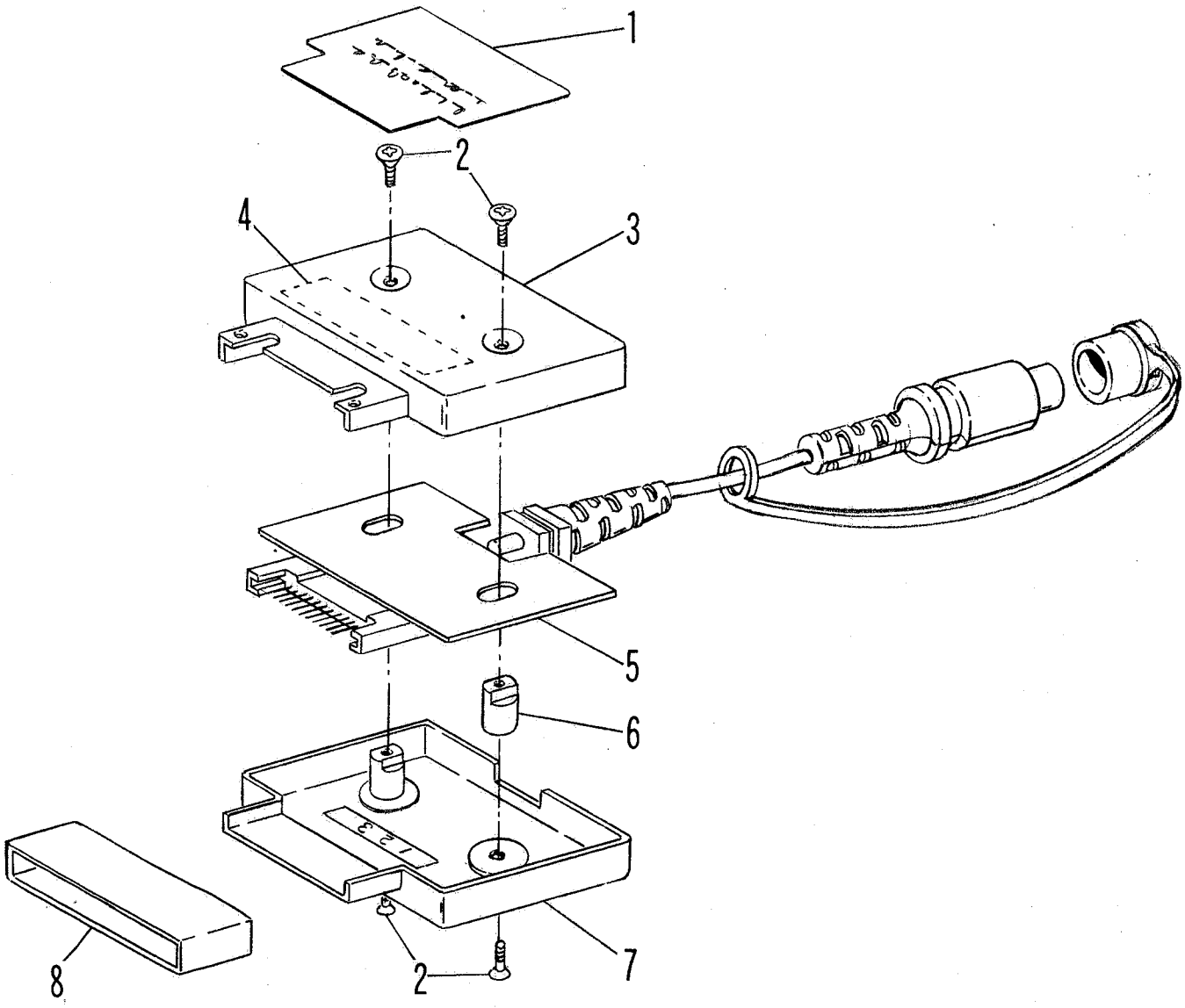
5 CE201M/CE202M (Option)

NO.	PARTS CODE	PRICE RANK Ex	PRICE RANK Ja	NEW MARK	PART RANK	DESCRIPTION
1	LX-BZ1178CCZZ	AA	DA		C	Screw ビス
2	TCAUZ1232CCZZ	AA	DA	N	C	Caution チュウイコーション
3	PSHEZ1142CCZZ	AA	DA	N	C	Sheet ホゴシート
4	HPNLH1042CCZZ	AH	DV	N	D	Bottom panel (CE201M) シタパネル
	HPNLH1042CC01	AH	DV	N	D	Bottom panel (CE202M) シタパネル
5	GFTAU1307CCZZ	AB	DB	N	C	Terminal cover タシシブタ
6	PZETL1539CCZZ	AA	DA	N	C	Insulator for terminal cover タンシフタ ヨウ ゼツエンシート
7	PZETL1540CCZZ	AC	DC	N	C	Insulator for PWB PWB ヨウ ゼツエンシート
8	PTPEH1265CCZZ	AA	DA	N	C	Tape ゼツエンシートコテイテープ
9	DUNTK8066CCZZ	BR	MZ	N	E	PWB unit (CE201M) (№101~107) キバン ユニット
	DUNTK8045CCZZ	BZ	TW	N	E	PWB unit (CE202M P-COS type) (№101~106) キバン ユニット
	DUNTK8200CCZZ	BZ	TW	N	E	PWB unit (CE202M Flat LSI type) (№101~108) キバン ユニット
10	PTPEH1254CCZZ	AA	DA	N	C	Tape (CE201M・CE202M Flat LSI type) キバン ハリツケテープ
11	QTANZ1476CCZZ	AB	DB	N	C	Battery terminal ⊕ デンチタンシ
12	QTANZ1477CCZZ	AB	DC	N	C	Battery terminal ⊖ デンチタンシ
13	MSPRC1274CCZZ	AA	DA	N	C	Spring for battery cover デンチブタ ヨウ スプリング
14	LX-NZ1020CCZZ	AA	DA		C	Nut ナット
15	PSPAP1270CCZZ	AA	DA	N	C	Spacer (CE201M・CE202M Flat LSI type) スペーサー
16	DUNTG8044CCZZ	AP	EP	N	D	Cabinet unit (CE201M) キャビ ユニット
	DUNTG8055CCZZ	AP	EQ	N	D	Cabinet unit (CE202M P-COS type) キャビ ユニット
	DUNTG8199CCZZ	AP	EQ	N	D	Cabinet unit (CE202M Flat LSI type) キャビ ユニット
17	PZETL1538CCZZ	AA	DA	N	C	Insulator for battery cover デンチフタ ヨウ ゼツエンシート
18	GFTAB1306CCZZ	AD	DG	N	D	Battery cover デンチブタ
101	RC-CZ1021CCZZ	AB	DB		C	Capacitor (0.1μF) コンデンサー
102	RC-SZ1007CCZZ	AF	DL		C	Capacitor (1μF) コンデンサー
103	RH-DZ1008CCZZ	AC	DD		B	Diode (DAN202) ダイオード
104	VRS-TP2BD125J	AA	DA		C	Resistor (1/8W 1.2MΩ ±5%) テイコウ
105	VHD1SS98/-/-1	AD	DH		B	Diode (1SS98) ダイオード
106	VHiTC74HC138F	AL	EC	N	B	IC (TC74HC138F) IC
	VHiTC40C138FN	AQ	ES		B	IC(TC40C138FN) IC
107	VHiTC5517AFL1	AY	FZ		B	IC (TC5517AFL1) (CE201M・CE202M Flat LSI type) IC
108	VHiD4364G20LN	BR	MT	N	B	IC (D4364G20LN) (CE202M Flat LSI type) IC
201	SPAKA8811CCZZ	AC	DE	N	D	Packing cushion for set SETヨウ アド
202	SPAKC8869CCZZ		DN	N	D	Packing case (CE201M)(Japan) パッキングケース
	SPAKC8905CCZZ	AH		N	D	Packing case (CE201M)(Export) パッキングケース
	SPAKC8812CCZZ		DS	N	D	Packing case (CE202M)(Japan) パッキングケース
	SPAKC8814CCZZ	AE		N	D	Packing case (CE202M)(Export) パッキングケース
203	TiNSJ4224CCZZ		DY	N	D	Instruction book (Japan) トリアツカイセツメイショ
	TiNSM4225CCZZ	AE	DM	N	D	Instruction book (Export) トリアツカイセツメイショ
204	TLABZ2082CCZZ	AB	DB	N	C	Name label ネームラベル
205	TLSTS1006CCZZ		DA		D	(Japan type only) サービスリスト
206	UBAGC1411CCZZ	AD	DF	N	D	Card case カードケース
207	UKÖGD1009CCZZ	AC	DD	N	C	Driver ⊕ ドライバー



6 CE516L (Option)

NO.	PARTS CODE	PRICE RANK Ex	PRICE RANK Ja	NEW MARK	PART RANK	DESCRIPTION	
1	TCAUK1229CCZZ		DA	N	C	Caution card	(Japan) チュウイカード
	TCAUK1198CCZZ	AA		N	C	Caution card	(Export) チュウイカード
2	LX-BZ1044CCZZ	AA	DA		C	Screw	ビス
3	GCABB2811CCZZ	AH	DW	N	D	Top babinet	ウエキャビネット
4	PZETL1551CCZZ	AA	DA	N	C	Insulator	ゼツエンシート
5	DUNTK8057CCZZ	AY	FZ	N	E	PWB unit	キバンユニット
6	LX-NZ1021CCZZ	AE	DK		C	Nut	ナット
7	GCABA2810CCZZ	AH	DW	N	D	Bottom cabinet	ソコキャビネット
8	PHŌG-1093CCZZ	AB	DC		C	Rubber cap for 11pin connector cable	11ピン コネクターケーブルヨウ ゴムキャップ
101	QCNCM1367CC1E	AK	EA	N	C	Connector (15pin)	コネクター
102	QCNW-1298CCZZ	AR	FA	N	C	Lead wire	リードワイヤー
103	SPAKC8817CCZZ	AF	DN	N	D	Packing case	パッキングケース
104	TiNSJ4287CCZZ		DG	N	D	Instruction book	(Japan) トリアツカイセツメイショ
	TiNSM4288CCZZ	AG	DR	N	D	Instruction book	(Export) トリアツカイセツメイショ
105	UBNDA1008CCZZ	AA	DA		C	Cord band	コードバンド
201	VHiTC40H004FN	AF	DP		B	IC (TC40H004FN)	[IC1] IC
202	VS2SC2812-H-1	AB	DC		B	Transistor (2SC2812)	[TR1] トランジスター
203	RH-DZ1005CCZZ	AC	DC		B	Diode (DAP202)	[D1] ダイオード
204	VRS-TP2BD104J	AA	DA		C	Resistor (1/8W 100KΩ ±5%)	[R1] テイコウ
205	VRS-TP2BD104J	AA	DA		C	Resistor (1/8W 100KΩ ±5%)	[R2] テイコウ
206	VRS-TP2BD105J	AA	DA		C	Resistor (1/8W 1.0MΩ ±5%)	[R3] テイコウ
207	RC-CZ1021CCN1	AA	DA		C	Capacitor 0.1μF	[C1] コンデンサー
208	RC-CZ1021CCN1	AA	DA		C	Capacitor 0.1μF	[C2] コンデンサー
209	PFiLN1009CCZZ	AE	DK	N	C	Coil	コイル



■索 引 (Index)

PARTS CODE	NO.	PRICE R. Ex.	PRICE R. Ja.	NEW	P/R
【D】					
DUNT-8038CCZZ	1- 37	AX	FX	N	E
〃	3- 1	AX	FX	N	E
DUNTG8035CCZZ	1- 6		EA	N	D
DUNTG8036CCZZ	1- 43		FE	N	D
DUNTG8041CCZZ	1- 6	AK		N	D
DUNTG8042CCZZ	1- 43	AS		N	D
DUNTG8044CCZZ	5- 16	AP	EP	N	D
DUNTG8055CCZZ	5- 16	AP	EQ	N	D
DUNTG8199CCZZ	5- 16	AP	EQ	N	D
DUNTK8039CCZZ	1- 34	BY	TU	N	E
〃	3- 901	BY	TU	N	E
DUNTK8040CCZZ	1- 18	BS	NJ	N	E
〃	4- 901	BS	NJ	N	E
DUNTK8045CCZZ	5- 9	BZ	TW	N	E
DUNTK8057CCZZ	6- 5	AY	FZ	N	E
DUNTK8066CCZZ	5- 9	BR	MZ	N	E
DUNTK8176CCZZ	1- 18	BS	NJ	N	E
〃	4- 901	BS	NJ	N	E
DUNTK8200CCZZ	5- 9	BZ	TW	N	E
DUNTK8295CCZZ	4-902	AG	DS	N	E
【G】					
GCABA2810CCZZ	6- 7	AH	DW	N	D
GCABB2811CCZZ	6- 3	AH	DW	N	D
GCASP1105CCZZ	2- 1		DN	N	C
GCASP1105CC01	2- 1	AF		N	D
GFTAA1287CC03	1- 47		DC	N	D
GFTAA1287CC04	1- 47	AB		N	D
GFTAB1306CCZZ	5- 18	AD	DG	N	D
GFTAU1307CCZZ	5- 5	AB	DB	N	C
GFTAU1309CCZZ	1- 1		DL	N	D
GFTAU1309CC01	1- 1	AE		N	D
GLEGG1031CCZZ	1- 7	AA	DA	N	C
【H】					
HPNLC1044CCZZ	1- 2	AB	DC	N	C
HPNLH1042CCZZ	5- 4	AH	DV	N	D
HPNLH1042CC01	5- 4	AH	DV	N	D
【J】					
JKNBZ1603CC09	1- 48	AF		N	C
JKNBZ1715CC07	1- 48		DK	N	C
JKNBZ1873CC03	1- 52		DU	N	C
JKNBZ1874CC03	1- 49	AF	DQ		C
JKNBZ1909CC01	1- 50	AF	DQ		C
JKNBZ1916CC01	1- 51	AF	DQ		C
JKNBZ1917CC01	1- 52	AH		N	C
【L】					
LANGK1558CCZZ	1- 21	AE	DJ	N	C
LANGK1564CCZZ	1- 16	AC	DD	N	C
LANGK1565CCZZ	1- 26	AC	DD	N	C
LANGK1566CCZZ	1- 28	AC	DE	N	C
LCHSS1163CCZZ	1- 32	AE	DK	N	C
LFIX-1190CCZZ	1- 4		DD	N	C
LFIX-1190CC01	1- 4	AC		N	C
LHLDZ1215CCZZ	1- 9		DD	N	C
LHLDZ1215CC01	1- 9	AC		N	C
LPLTP1135CCZZ	2- 2	AB	DB		C
LX-BZ1044CCZZ	6- 2	AA	DA		C
LX-BZ1116CCN1	1- 15	AA	DA	N	C
LX-BZ1120CCZZ	1- 19	AA	DA		C
LX-BZ1147CCZZ	1- 27	AA	DA		C
LX-BZ1178CCZZ	5- 1	AA	DA		C
LX-BZ1184CCZZ	1- 23	AA	DA	N	C
LX-NZ1010CCZZ	1- 31	AA	DA		C
LX-NZ1020CCZZ	5- 14	AA	DA		C
LX-NZ1021CCZZ	6- 6	AE	DK		C
【M】					
MSLIP1020CC01	1- 44	AB			C
MSLIP1020CC04	1- 44		DB		C
MSLIP1031CCZZ	1- 12		DC	N	C
MSLIP1031CC01	1- 12	AC		N	C
MSPRC1206CCZZ	1- 42	AA	DA		C
MSPRC1274CCZZ	5- 13	AA	DA	N	C
MSPRC1276CCZZ	1- 22	AA	DA	N	C
MSPRC1277CCZZ	3- 2	AA	DA	N	C
【P】					
PCAPH1016CCZZ	1- 53	AA	DA	N	C
PFILV1520CCZZ	1- 39	AE	DL	N	C
PFILW1519CCZZ	1- 41	AD	DG	N	C
PGUMM1548CCZZ	1- 35	AH	DV	N	C
PGUMS1549CCZZ	1- 10	AE	DK	N	C
PGUMS1550CCZZ	1- 36	AC	DE	N	C
〃	3- 3	AC	DE	N	C
PGUMS1563CCZZ	1- 25	AA	DA	N	C

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PHOG-1093CCZZ	6- 8	AB	DC		C
PSHEZ1142CCZZ	5- 3	AA	DA	N	C
PSHEZ1144CCZZ	1- 46	AA	DA	N	C
PSLDP1473CCZZ	1- 40	AC	DE	N	C
PSPAP1269CCZZ	1- 17	AA	DA	N	C
PSPAP1270CCZZ	5- 15	AA	DA	N	C
PTPEH1039CCZZ	1- 38	AA	DA		C
PTPEH1090CCZZ	1- 3	AA	DA		C
PTPEH1213CCZZ	1- 13	AB	DB		C
PTPEH1254CCZZ	5- 10	AA	DA	N	C
PTPEH1265CCZZ	5- 8	AA	DA	N	C
PZETL1313CCZZ	3- 4	AA	DA		C
PZETL1538CCZZ	5- 17	AA	DA	N	C
PZETL1539CCZZ	5- 6	AA	DA	N	C
PZETL1540CCZZ	5- 7	AC	DC	N	C
PZETL1551CCZZ	6- 4	AA	DA	N	C
【Q】					
QCNCM1367CC1E	6- 101	AK	EA	N	C
QCNCW1306CC1B	1- 29	AK	DY		C
〃	4- 1	AK	DY		C
QCNCW1368CC1E	1- 33	AM	EF	N	C
〃	3- 5	AM	EF	N	C
QCNTM1064CCZZ	1- 11	AA	DA		C
QCNTM1051CCZZ	4- 2	AB	DB		C
QCNW-1297CCZZ	1- 30	AC	DD	N	C
〃	4- 3	AC	DD	N	C
QCNW-1298CCZZ	6- 102	AR	FA	N	C
QPWBM2359CCZZ	1- 24	AK	DY	N	C
〃	3- 6	AK	DY	N	C
QTANZ1289CCZZ	3- 7	AB	DB		C
QTANZ1406CCZZ	1- 20	AB	DC		C
QTANZ1476CCZZ	5- 11	AB	DB	N	C
QTANZ1477CCZZ	5- 12	AB	DC	N	C
QTANZ1478CCZZ	1- 8	AB	DB	N	C
〃	4- 4	AB	DB	N	C
【R】					
RALMB1030CCZZ	1- 14	AD	DF		B
RC-CZ1021CCZZ	3- 8	AB	DB		C
〃	4- 5	AB	DB		C
〃	5- 101	AB	DB		C
RC-CZ1035CCZZ	3- 9	AC	DD		C
RC-CZ1037CCZZ	3- 10	AB	DB		C
RC-CZ1047CCZZ	3- 11	AB	DB		C
RC-SZ1007CCZZ	3- 12	AF	DL		C
〃	5- 102	AF	DL		C
RC-SZ1021CCZZ	3- 13	AC	DE		C
RCRSZ1063CCZZ	3- 14	AF	DM		B
PFILN1009CCZZ	6- 209	AE	DK	N	C
RH-DZ1005CCZZ	3- 15	AC	DC		B
〃	6- 203	AC	DC		B
RH-DZ1008CCZZ	5- 103	AC	DD		B
RH-TX1017CCN1	4- 6	AB	DB		B
RVR-Z2400QCZZ	3- 16	AF	DN		B
【S】					
SPAKA8802CCZZ	2- 3	AD	DH	N	D
SPAKA8811CCZZ	5- 201	AC	DE	N	D
SPAKC8803CCZZ	2- 4		DX	N	D
SPAKC8805CCZZ	2- 4	AH		N	D
SPAKC8812CCZZ	5- 202		DS	N	D
SPAKC8814CCZZ	5- 202	AE		N	D
SPAKC8817CCZZ	6- 103	AF	DN	N	D
SPAKC8869CCZZ	5- 202		DN	N	D
SPAKC8905CCZZ	5- 202	AH		N	D
【T】					
TCADZ1689CCZZ	2- 10		DD		D
TCAUK1198CCZZ	6- 1	AA		N	C
TCAUK1229CCZZ	6- 1		DA	N	C
TCAUZ1232CCZZ	5- 2	AA	DA	N	C
TINSE4219CCZZ	2- 5	AV	FP	N	D
TINSJ4217CCZZ	2- 5		FQ	N	D
TINSJ4224CCZZ	5- 203		DY	N	D
TINSJ4287CCZZ	6- 104		DG	N	D
TINSM4225CCZZ	5- 203	AE	DM	N	D
TINSM4288CCZZ	6- 104	AG	DR	N	D
TLABH2027CCZZ	2- 6		DC	N	C
TLABH2028CCZZ	2- 6	AC		N	C
TLABJ1083CCZZ	2- 7	AA	DA		C
TLABZ1295CCZZ	2- 8	AA	DA		C
TLABZ2082CCZZ	5- 204	AB	DB	N	C
TLSTS1006CCZZ	2- 9		DA		D
〃	5- 205		DA		D

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〔U〕						
UBAGC1411CCZZ	5- 206	AD	DF	N	D	
UBNDA1008CCZZ	6- 105	AA	DA		C	
UKOGD1009CCZZ	5- 207	AC	DD	N	C	
〔V〕						
VCTYPU1NX104M	4- 7	AB	DB		C	
VHD1SS98///-1	5- 105	AD	DH		B	
VHID4364G20LN	5- 108	BR	MT	N	B	
VHIHM6116//-C	4- 8	AZ	GG		B	
VHILH535624-1	4- 9	BK	HV	N	B	
VHISC43537LDN	3- 17	AW	FS		B	
VHISC60220/-1	3- 18	AW	FT		B	
VHISC61860A13	3- 19	BB	GL		B	
VHITC40H004FN	6- 201	AF	DP		B	
VHITC5517AFL1	5- 107	AY	FZ		B	
VHITC40H138FN	5-106	AQ	ES		B	
VHITC74HC138F	5- 106	AL	EC	N	B	
VHI613256FG76	4- 10	BK	HV	N	B	
VRD-ST2BY472J	4- 11	AA	DA		C	
VRS-TP2BD100J	3- 20	AA	DA		C	
VRS-TP2BD103J	3- 21	AA	DA		C	
//	4- 12	AA	DA		C	
VRS-TP2BD104J	3- 22	AA	DA		C	
//	4- 13	AA	DA		C	
//	6- 204	AA	DA		C	
//	6- 205	AA	DA		C	
VRS-TP2BD105J	3- 23	AA	DA		C	
//	6- 206	AA	DA		C	
VRS-TP2BD125J	5- 104	AA	DA		C	
VRS-TP2BD303J	3- 24	AA	DA		C	
VRS-TP2BD472J	4- 14	AA	DA		C	
VS2SC2812-H-1	3- 25	AB	DC		B	
//	6- 202	AB	DC		B	
〔X〕						
XBBSF20P08000	1- 5	AA	DA		C	
XUBSD20P08000	1- 45	AA	DA		C	